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POPULAR SCIENCE.



THE LAWS OF LIFE.



THE
LAWS OF LIFE,
WITH SPECIAL REFERENCE TO
THE PHYSICAL EDUCATION OF GIRLS.

BY
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TO AMERICAN WOMEN.

THESE Lectures were delivered to a class of ladies during the past Spring; the wish of the class, and an earnest desire to call attention to a much neglected part of education, have induced me to publish them.

I present them as outlines of Truth and as indications of the right method of education, rather than as a full discussion of the subject.

They are the first fruits of my medical studies—
I would offer them as an earnest of future work.

44 UNIVERSITY PLACE, }
June, 1852. }

CONTENTS.

| LECTURE. | PAGE. |
|----------------------------------|-------|
| I. INTRODUCTORY, | 9 |
| II. GENERAL LAWS, | 36 |
| III. THE ORGANIC LIFE, | 62 |
| IV. THE RELATED LIFE, | 90 |
| V. CRITICISM, | 122 |
| VI. REFORM, | 152 |

THE LAWS OF LIFE.

INTRODUCTORY.

Six thousand years ago, my friends, a vision of perfect beauty gladdened our earth ! There in the crystal atmosphere of a new world, surrounded by the first freshness of a young creation, with hope and joy around them, and the glory of Heaven thrown widely open, stood the first man, male and female, the image of God on earth, the noble parents of the human race !

Beautiful exceedingly was that first man, made after the Divine likeness, strong and wise also, for forest and plain, and every living creature, was subjected to their dominion ; they ruled over land and sea, holding their commission from the Deity. Their wisdom and purity were derived from Heaven, for to the great childlike heart of the first man, the spirit world was ever open. Heaven and Earth were one, for they enjoyed direct communion with the Divine Father.

The traditions of all nations point to a primeval grandeur of the human race, whose glory shines through the mist of ages ; a golden age, when the gods could visit mortals—when wisdom and innocence were one—when there was no discord in our nature, but freedom was order, to know, to will, to do, were one ; when human brotherhood was a present fact—when there was harmony between man and creation, between man and the Creator.

A gleam of this bright vision comes to us through the records of every nation ; it shines through the mystic writings of the East, through the poetic fables of the West, through the wild sagas of the North ; and the eye of faith gathering up these scattered rays, bends them on the Garden of Eden, where in beautiful radiance we behold the first man, Adam and Eve, Heaven-crowned ; and in them we may incarnate our ideal of the Human race ; harmoniously blending beauty and strength, lofty intelligence, powerful action, and purity of soul.

Connected with this universal thought, of the lofty *origin* of Humanity, is the high *standard* which is cherished by every people of the grand power of our nature—the excellence to which it may attain. The evils of existence, the poverty of daily life, have never dimmed this thought, this aspiration after a loftier expression than is seen in actual performance ; there is a deep con-

sciousness in the heart of every people, that at some future time, they shall reach a higher condition than their present one. A spirit of unseen beauty broods over them, and thus we behold the effort of man in every age to express his own ideal—to behold his own faculties raised to their highest power—to realize fully the constant truth of the profound thought expressed in these simple words,

“So God created man in His own image, in the image of God created He him, male and female created He them.”

Observe how in all ages our ancestors have endeavored to express their ideals by beautiful forms, through which the spirit might freely shine; they saw more clearly than we do, that the condition of our present life is the *union* of body and soul, that we cannot live as disembodied spirits, but must necessarily express ourselves through a material frame—that our aspirations are often limited by the body, and that the condition of our material organization reacts most powerfully upon the soul. They saw that weakness, ugliness, and disease, deaden our power, cripple all our activities, and render our lives discordant—therefore they figured their gods and goddesses and heroes, under forms of surpassing beauty; their bodies were well proportioned, the features regular; every muscle had a living development, every sense a vigorous organ; and all these forms

though perfect, were infinitely varied—the beauty of Juno was not the beauty of Diana—the perfection of Jupiter differed from that of Apollo—it was not the beauty of material form as an end, that they aimed to reach, but the grand truth that the loftiest qualities of the soul find their highest expression in corresponding beauty of form.

See how beautifully the harmonic development of one phase of womanhood was expressed in the ancient myth of Athena, the stately deity of Attica. Her mother was the wisest, her father the most powerful of the celestials, and these attributes of wisdom and power were blended in her character with that benignant protecting care which marks the maternal character in woman. She was the protectress of the state and of social institutions, and of all that gives to *society* its highest prosperity. She was the inventor of the plough, the rake, the bridle; she created the olive tree, instructing men in the cultivation of the land, and the taming of animals. The inventions ascribed to her, were such as required thought and meditation—the science of numbers, the art of navigating, the use of fire, were taught by her, and the elegant works of women. She maintained law and justice, and when judgment was divided in the case of an accused person, she gave a casting vote on the side of mercy. She was the protectress of the defencees of the state, the walls, fortresses, harbors, and her warlike

character is assumed for the welfare of the people—she is represented as sitting by the side of Jupiter, supporting him by her counsel. The expression of her countenance is thoughtful and earnest, her face oval, with luxuriant hair combed back from the temples, and floating freely down behind; the figure is majestic and strongly built, clothed in the Spartan tunic and cloak.

Thus in infinitely varied and beautiful allegories, our ancient brethren sought to realize their idea of what mankind should be, and in every age our prophetic poets and artists have preached the same faith—the noble possibilities of human nature—the high standard to which it may attain. “Be ye perfect, even as your Father in Heaven is perfect,” is the earnest command laid upon us, to use every means, in our daily life, to attain to the perfection of our nature, of our soul and body—and the highest possible standard is held before us—man the image of God! Can the wildest dream of the poet strive after a higher standard than this, this glorious ideal laid down in the Old Testament, and enforced in the New? We may give the freest wing to our aspiration, and dream of a glorious state in which all past attainments will seem poor—such a state we shall attain to—revelation supports reason in the conviction. We see that the *highest* aspiration we can form, is the *truest*—oh let us cherish this faith, and believe the Di-

vine words which tell us, that man, at first made in the likeness of God, *must attain* again to that perfection. Let us shake off the faithlessness which is our curse, and rise above the narrow view which can see nothing but present imperfection and suffering. Let us realize that it is our great privilege to work for this grand future, when man shall again be the image of God—that the effort of every individual is needed in the work—that the Providence of God uses human means, and that ever man or woman who will not turn his talent to account, *delays, according to the measure of his power*, the advent of the Divine Future !

It is then my friends a most sacred duty—the grand duty of life—to use all the light we can gather from every source, and see how we may improve our own condition, and the condition of the race ; and by what steps—slow perhaps, but ever onward—we may attain at last the ideal perfection.

And what is this perfection after which we must strive ? let us form to ourselves a clear idea of it. Our religious teachers point to the redemption and purification of the soul—a *grand truth*—but is it the whole ? Our schools and colleges, our libraries, lectures, museums, and mechanics' institutions, provide for the mind and look to the truths of science for our elevation. We glory in universal suffrage, in the organization of our government, and look to political action for the amelio-

ration of evil, and to the spread of principles of justice, freedom and order, throughout the world, as the great regenerators of mankind. These are grand truths—they are the soul of man. But are we not something more than soul or mind or universal principles? are we not also substantial, material, and wonderful *living bodies*—bodies of most strange and complex structure, where all sorts of manufactures are carried on; bodies composed of an infinite multitude of busy workmen, governed by their own laws, and full of imperious wants, which must be satisfied, that their work may be carried on well—bodies so important to our welfare, that if we neglect them beyond a certain point, we die—and yet so willing to help us, that every little worker will strive his utmost, and each part will help the other parts, and they will seek even to change the great laws of their organization, in order to accomplish our will. If we injure one part, another will seek to supply its place. If a large blood-vessel is obliterated, the smaller ones will enlarge to convey the needed quantity of blood. If one part of an organ is hindered in its functions, the remainder will take on increased activity and try to perform itself the full amount of work. If we take poisonous food or air into our bodies, they will warn us of the mischief by pain, by spasmodic closure of the orifices, and set to work at once, by the stomach, the skin, in every possible way, to get rid of the dangerous visitor.

If we wish to call one part into special exercise, if we need the active use of our brains, Nature will endeavor to aid us—she will send more blood, to supply the waste of material, and will accommodate the rest of the economy to this predominating exercise ! But who in our society seeks to know intimately this lovingly obedient organism, to understand its wants, and place it in the condition to aid us powerfully ? What class is there that cares for the Body ? We leave it to our butchers and bakers and grocers, and their great desire is to sell and make money, no matter whether the blood is poisoned and the stomach disordered by their diseased and adulterated goods. They do not even dream of the delicate and wonderfully organized communities they may injure when they distribute unwholesome articles to their customers.

In practical life, in the education of our children, in the construction of our cities and the arrangements of society, we neglect the body, we treat it as an inferior dependent, subject to our caprices and depraved appetites, and quite ignore the fact, that it is a living wonderful being, full of our humanity, and capable of immense service, if we would reverence it as our friend and equal.

In our deeper thoughts, unconsciously we render it homage—the perfection of *body* and soul is as necessary to *our* ideal, as it was to the ancients. Who ever imagined Adam suffering from dyspepsia, or Eve

in a fit of hysterics? The thought shocks us—our Eden becomes a hospital. And yet in our daily life, we never realize and provide for this essential harmony, but treat our bodies like the poor over-driven hacks in our omnibuses.

We often do our bodies great injustice by attributing to them the low appetites and perverted passions, which really belong to a degraded spiritual nature. We are shocked by the vices of gluttony, intemperance, &c., for which the body becomes an instrument—we see how indulgence in these vices degrades the human being, and deadens all the higher faculties of his nature, rendering him incapable of the exercise of *those* powers of which the body is *not the direct* instrument—we conclude therefore that the body is the *cause* of this vice—that if we could subdue or destroy *it*, these evils would no longer exist—that the spiritual nature would triumph in proportion to the annihilation of the material form—but this is a complete mistake. In the unseen world, the unholy will be unholy still; every vice that stained the earthly life, will remain, when the body that was degraded by their practice, has returned to its original elements!

Let us remember that when we cover our table with all the delicacies that money can procure, and expend time and thought on the subject of eating; when we build magnificent houses and furnish them with every

luxury ; when we consume life in devising elegant garments, and spend the nights in crowded ball-rooms—it is not the body which tempts us to the destruction of our own health, and to the neglect of higher duties ; but appetites and desires which belong to the inner nature, and which would remain if we had no bodies.

Our material nature will minister to the noblest aspirations of the soul, if our souls are noble—they will become instruments of degraded passions if our hearts are base.

It is this fact which renders so false, the art of the middle ages, which sought to glorify the inner life, by representing the tortures endured by martyrs, and the agonies of penance willingly undergone by the aspirants to a holy state. But as we gaze at the ugly wasted form, the ghastly paleness of the suffering saint, we are pained, we shudder at the sight—we reverence the triumphant spirit which nothing can quench ; but we are conscious that this is not its highest expression—that suffering and struggle must pass away, and a noble harmony of all our powers exist, before mankind will have attained its ideal.

We see by the most striking examples—which I shall lay before you in detail as we proceed, that what are styled *bodily indulgences*—are not good for the body, are not what it demands—that simple, even coarse fare, much active exercise, and exposure to what we

might consider hardships, suit the body much more than luxurious habits and dainty fare, for it will grow strong and handsome, and obedient to our higher nature under the former, while it will suffer in innumerable ways, and lose all its proper life, under habits falsely called bodily indulgences.

The ancients, in respect to our double nature, were wiser than we. Not only did they distinctly recognize the necessity of a strong, healthy, and beautiful body as the continent and expressive instrument of all that was lofty and admirable in the spirit, and celebrate in song and painting the swift-footed Mercury, the blue-eyed Minerva, and the strong arm of Jove, but they set themselves earnestly to work to acquire that foundation of noble humanity, an harmoniously developed body. The education of the young was a subject of earnest thought, to the wisest men of ancient Greece. It was carefully provided for by the state, strictly regulated in all its details—and throughout Greece the basis of education was one—physical training—the growth of a healthy, strong, and beautiful material organization, as of the *first importance*. This same necessity was perceived in *warlike Sparta*, where men of action were demanded, strong rulers and soldiers—and in *polished Athens*, where cultivated intellect, grace, and refinement formed the ideal—their first effort was directed to the education of the body, in a system of remarkable regulations, to which I shall call your attention, on a future occasion.

We gaze with astonishment and curiosity upon the lances and swords of the ancient Teutonic nations—upon the rude enormous monuments of architecture which they raised, the rocks which they rolled to the summit of the hills in honor of their gods. But when we turn to the history of those stout ancestors of ours, we learn the secret of their strength. From the most tender age they hardened their bodies and accustomed them to cold, fatigue, and hunger—the sports of childhood were all directed to a warlike end—dangers were intermingled with their play, for it consisted in taking frightful leaps across the chasms of their snow-covered mountains, in climbing up the steepest rocks, in fighting naked with offensive weapons, in wrestling with the utmost fury. Their diet was extremely simple. We are told that the Suevi lived chiefly on milk. They grew up in wild freedom—early marriages were strictly prohibited—indeed the warlike women of those times disdained a husband who had not distinguished himself by victories.

When we read in the chronicles of past ages, the many feats recorded of physical power,—of a body that knew neither weakness nor fatigue, an iron strength of endurance and action—it seems to us like the echo of a distant age with which we have nothing to do. We cannot realize the strength of the beautiful Cymburga, wife of the stalwart Duke Ernest of Austria, who could crack nuts with her fingers, and drive a nail into a

wall with her hand, as far as others with a hammer. When we hear of the lofty Brinhilda, who bound her offending lover with her girdle, and slung him to a beam of the ceiling, we do not recognize that the myth which represents the wild strong life of that distant age, has a lesson for us, and we should ponder the question whether in our modern days we have not lost much stout virtue, with the failure of our bodily powers. The breakfast feats of good Queen Bess and her maids, on rounds of beef and mugs of ale, seem incredible in our poor dyspeptic days—what would not our delicate ladies and gentlemen give for that vigorous life, which could spring out of bed at five o'clock, full of energetic activity, digest and enjoy plain substantial fare, and pursue every occupation of the day, with the power of robust health?

We could hardly sit at the breakfast-table of the old Earl of Northumberland, of whom we read, "My Lord and Lady have for breakfast, at 7 o'clock, a quart of beer, as much wine, two pieces of salt fish, six red herring, four white ones, and a dish of sprats!"

The ease of childbirth in many of those hardy races would seem to us incredible, did the statement not rest upon testimony too strong to be shaken. We are told of the Celtiberian women, that when surprised by the pains of labor, no matter where, they retired to a secluded spot, wrapped the infant stranger in a warm covering, and returned to their occupation as if nothing extraordinary had happened!

“Arabsah, in his *Life of Timur*, tells, that among the wandering Tartars nothing is more common than for a woman on a journey to descend from her horse, retire a short distance from the path, give birth to her offspring, suspend it by a sort of shawl from her neck, re-mount and proceed onwards. And all this without the least assistance from any living creature. The Syrian doctor's statements have been abundantly confirmed by subsequent travellers.”

We have similar accounts given of the ease of labor amongst the Scandinavian women and many Indian tribes.

It is a deplorable fact that our age has lost in bodily strength as it has gained in associated mental strength; while science and the arts of social life have received an immense impulse in modern days, our bodies are enfeebled, new forms of disease have appeared amongst us, our lives have become shorter, and increasing vice follows in the train of this physical degeneracy.

The reason of this will become plain to us if we reflect for a moment on the change in our social habits. The early life of a nation is a life of the woods and fields, scattered over the country, ranging freely in pure air, hunting, fishing, felling forests, building cabins, or erecting castles; training warlike retainers and engaged in wild forays; the people fulfil many of the conditions essential to physical well-being, and these rough and

active employments absorb the physical activities and direct the mental energy in the same channel. Thus we find nations, in this early stage of their life, strong and active, free from disease of body, and without those vices which are created by a more artificial state. Now, observe, that this early condition of a people, though it presents certain conditions of freedom, of air, exercise, food, &c., which conduce to the health of the body, is by no means the ideal state for which we are looking, which requires the full development of mind and body. In this early state the spiritual life of man is neglected; accordingly we find the nation with no respect for its neighbor's rights, or even for the rights of its own *members*; with no lofty religious faith; with art and science unknown; and all that vast domain of the head, the heart, the reason, entirely uncultivated. Such being the case, even the bodily condition cannot have reached its highest development, for the body demands the kingship of the spirit; it is not intended to lead, and it is not capable alone of unfolding its vast powers. Digestion is strong, the muscles are powerful, the nerves are calm, the body has done its very best, and carries on all its operations with perfect order, but it needs the power of the soul to give it an aim, to make it beautiful, expressive, true to its destiny, which is to incarnate a lofty spirit. The perfect state of the organic life, of digestion, nutrition, innervation, and all the secretions, is the foundation-stone

of our ideal ; we might as well attempt to build a marble edifice on rotten arches as strive for perfection with a disordered stomach or weak nerves ; but this organic health is not the end, even of our bodily life, and thus the early state of a nation is only an imperfect development even of our external condition.

The mind grows and demands the exercise which can only be found in associated activity ; so cities are formed, the arts and sciences are cultivated—poetry and painting and architecture elevate our life—the social affections are developed, the active intellect expresses itself in railroad and telegraph and printing-press, a great and powerful nation arises, and modern civilization spreads itself around us. Let us look at the picture of every-day life in our own home. It is a wonderful life ! It is the triumph of intellect ! We live in palaces that our ancestors in the woods and fields never dreamed of. The decoration of our houses, the way in which they are warmed and lighted and furnished would have seemed to them miraculous ; our bodies are clothed in elegant fabrics, our food is daintily prepared, and we lie down on soft convenient beds. We have formed a lofty theory of education for our children, and arranged the institutions by which it is to be carried on with great care. To train their intellect we send them to school, where they listen for hours to the wonderful things in heaven and earth, the nature of distant countries, the history of past

nations—they must learn to converse with strangers in their own languages—we endeavor to initiate them in all science and literature and art. Home is the place where their affectional nature is to be cultivated, and the principles of a high morality inculcated. At church they are duly instructed, week after week, in the theories and duties of religion, and as they grow older breathing in the air of free institutions, they are to learn the grand lessons of liberty and equality, and engage in the responsibilities and duties of free citizens.

What a vast improvement would this be over the early mental and moral condition of a people if it were realized. We might indeed be tempted to exclaim—At last the actual condition of mankind is approaching its ideal standard of excellence! But unhappily the bright picture is not a reality. There is a fearful amount of vice, misery, and disease existing under the fair outside of society, from which we should shrink with horror if we saw it in its naked truth. And this vice grows with our growth. The closer we come together in a dense population, the larger we build our fair cities, the more fearful becomes this pestilence of evil which spreads through every rank of society, and reaches, under different forms, from the lowest to the highest. We find hypocrisy under our lofty pretences, falsehood where we should meet truth, cunning instead of honor, frivolity instead of earnestness, corruption instead of purity, till the lofty

ideal of the past, which should become still loftier in the present, is almost lost under the existing evil.

The *intellect* has received a remarkable development in the present age. It has taken the lead in every department of human interest; our whole practical life, business, education, government, proves the predominance of the active faculties of the intellect over the other elements of our human nature.

It is not my purpose to show how necessarily false and evil our state must be, where the moral and religious nature, and consequently the highest mental power, Reason, are thus subservient to the active logical powers of the mind; but my object is rather to dwell upon the sins of this age, in relation to the body; how, going to the opposite extreme, the later stage in the life of a nation, tending to dwell exclusively in the intellect, neglects the physical frame, thereby producing immense evils, both spiritual and material, and to lead you to the important conclusion, that as the body cannot attain its highest development without the aid of the mind, so neither can the soul of man unfold its sublime capacities unaided by the body.

It is a most striking feature in our present condition, that we pay so little attention to the direct welfare of the material organization, which forms the essential condition of our present existence. Observe, I do not mean to say that we pay no attention to eating, drinking, dressing,

and making money, which will procure us every sort of material gratification ; it forms the staple of our life ; this, as I have already remarked, proceeds from the necessities of our nature, from spiritual wants, manifested through the body, and for which we make the body an instrument of good or bad, according to the quality of our souls, but the neglect which is so striking in our society is our ignorance of what this physical nature in *itself* demands, what are the laws of its well-being, how we may make it healthy and strong, what the perfection of this nature really is, whether it possesses powers which are not yet unfolded, what it was meant to do *for us*, and what we ought to do *for it*. We find the body in many respects quite independent of us : it has a life of *its own* as well as a use as our instrument. From the very great and necessary use which it is to us, as a medium of expression, it becomes a subject of deep interest to understand its independent life, that we may learn how to place it in the best conditions for serving us, that we may find out new uses for our service, and understand more completely the relation it ought to sustain to us.

But such thoughts seem hardly to belong to our age—they never occur to us. Former ages having made the fatal mistake of attributing sin to the body instead of to a corrupt heart, we continue to despise it, to neglect its separate life—we forget the wonderful fact

of the *incarnation*, the sanctification of the body, the *Divine humanity*.

We say the body tempts us to sin, but the *healthy* body is an aid to virtue. Let me refer to one striking fact, which I shall enlarge on in a future lecture. You all know of that dark evil in our society which corrupts our manhood and destroys our youth, the wide-spread evil of licentiousness. How often this is attributed to bodily organization, and the thought entertained, that only by subjection of the *material* existence it can be overcome. Now the fact to which I will call your attention is this, that the physical education of the body, its perfectly healthy development, *delays the period of puberty*, and that a true education, in which all the *bodily powers* were strengthened as well as the mental and moral ones, would be the most effectual means of outrooting this evil, which now proceeds from a diseased mind in a diseased body.

Our neglect of the material organization is productive of innumerable evils; it produces first a physical degeneration of the race, which is strikingly exhibited in the external appearance of any assembly of individuals.

When we walk down our crowded Broadway, we cannot but observe how unbeautiful, ungraceful, unattractive the human race has grown—what plain, mean features—what jaded, ignoble, vacant expressions—what shuffling, awkward, unstable gait—pretty faces are rare

—*grandly beautiful* faces are not to be seen ; and could we view the figure unconcealed by art, what shrunken limbs, crooked spines, weak joints, and disproportioned bodies, would greet our eyes, we should assuredly take the spectacle for a caricature of humanity ; we could not believe that such a fatal distance existed between us and our Adam and Eve.

This neglect produces, secondly, a rapidly increasing list of diseases. It has been said, that if a wag in Broadway should suddenly cry out, Doctor ! half the men in the street would turn in answer to the title. Certain it is, that the large annual lists of medical graduates, *testify to the immense amount of disease existing amongst us*. The number of our doctors measures the number of our diseases. How many individuals can say, I am thoroughly well at this moment ? How many can say, my health has been perfect for years ? Yet we ought all to enjoy such a condition of uninterrupted health ; it should be our natural heritage ; it is the foundation of the highest life.

It is a terrible fact, that insanity—that fearful scourge of humanity—has greatly increased in modern times. Insanity, fearful in itself, is multiplied in horror, by its tendency to transmit itself from one generation to another. This is a disease of specially mental origin, and we find in the neglect of physical development, and the excessive mental excitement of modern times, the cause of the great increase of the curse of insanity.

Disorders of the stomach have greatly multiplied amongst us. Dyspepsia has a most lamentable prevalence in America; and this distressing disease cannot remain a stationary or local one. Interfering with the process of digestion, it renders the chyle, and consequently the blood, imperfect, gradually affecting the various parts of the organism, till the whole health and happiness of the individual is destroyed.

Another large class of diseases—a most afflictive growth of modern days—is the class of *nervous diseases*. There are many of these affections which take on a definite form, producing violent pain in a particular spot, or some special local derangement; but the majority assume the most protean forms, simulating all manner of organic diseases, but without producing any perceptible organic change. There is no kind of malady which the nervous person will not imagine herself to have—scarcely any which the physician may not be induced to suspect, from the presence of diagnostic symptoms, till the non-appearance of certain results proves that it is *only nervous*. But is the suffering any the less real, because the victim of nervous disease lives on, and the body preserves to some extent its integrity? All the nameless horrors and the tortures of morbid sensation, are terrible realities to the sufferer; and when, after trying in vain to obtain relief from doctor after doctor, and resorting to every new system, or to every quack, till the sympathy

of friends is exhausted, and hope is gone, she finds nothing left but to endure existence till she dies, it is a mockery to tell her, she is only nervous. These extreme cases are no fancy picture—they are terrible products of our unwise habits, our neglect of the laws of the body in early life ; and 'in every sphere of society, what an immense number of women find their usefulness impaired and their happiness diminished, from being "highly nervous."

But there is still a darker picture of disease, to which I must particularly direct your attention, viz., diseases of the generative system ; and I urge this subject upon your attention, not only from the fearfully rapid increase of these maladies, but because the only effectual cure of these diseases rests with you, in the education of a stronger generation, in the observance of more rational habits of life.

It is a startling fact that you should all know, that the necessity for the special study of these diseases, for forming them into a special branch of practice, is a modern necessity, produced by the rapid spread of these diseases amongst young and old, and in every rank of life. A famous German professor, whom I met in London last year, told me that they were only beginning to institute professorships for instruction in the diseases of women, in his country, and he seemed surprised to find that they had already existed for some time in London.

The want had not been felt before; it is the sad necessity of our own time.

I will not attempt to paint the moral as well as the physical sufferings of those who labor under these diseases; for, to the unhappy victim, the treatment often seems worse than the disease, and the results of medical treatment are necessarily very unsatisfactory; they must be so, whenever disease proceeds from the systematic neglect of Nature's fundamental laws; for even if the physician's skill cures the evil for a time, the cause remains, and the evil returns, and grows continually worse; and too often the mischief done to the growing girl, by the infringement of physical law, can *never* be repaired in after life, no matter how great the skill of the physician.

There is another fearful consideration connected with the rapid spread of the diseases of women—it is the degeneracy of the race, which is taking place, and which must inevitably be the result of a weakened and diseased state of the mothers of our land. Surely this thought, if no other, should arrest the attention of a conscientious being, of a tender parent,—*voluntarily* to injure our children, to degrade humanity; for the fact is clear as sunlight, these diseases are no mysterious dispensation, no evil beyond our knowledge and reach. I assert, emphatically, that the diseases of women, which have so rapidly increased, and are still increasing, with

such deplorable results, are directly within our own power radically to cure.

The *very large majority* of these cases are produced either by a ruinous education, which weakens the body, and sets at defiance all the natural laws of our being, or by acts of imprudence which would have been avoided, had the individual been acquainted with the nature and wants of her own organization.

Think of this, oh mothers ! when you see your young daughters growing up around you, remember that it is in your power to render them healthy and strong in body, and the mothers, in their turn, of a stronger race than ours, or to subject them to the disease and suffering which enfeebles the present generation. Do not continue in the fatal error of our age—forcing the intellect, and neglecting the development of the body—do not sacrifice to the false beauties of fashion the higher beauty of health, of happiness, and of usefulness.

We have dwelt upon the lofty standard of humanity, which we should endeavor to reach, the ideal placed before us in the sacred records as a state which we may attain, an ideal which has dwelt in the heart of every age and every nation. We have seen that this ideal consists in the perfection of the compound nature of man, and that in the present age we make the fatal mistake of neglecting entirely one of the essential elements of this nature. I have pointed out some of the evils which

result from this neglect, evils to the *physical* well-being—for of the mental or moral disease springing directly or indirectly from our ignorance of physical laws, I have not spoken.

My object in the present course, is to call your attention to the importance of this subject—the physical education of the young—and to urge upon you the means by which our present degeneracy may be checked, and a steady progress made in the improvement of the condition of the race. To do this, I shall, in the first place, point out the great principles which govern existence, and according to which the material life of our bodies is carried on. I shall show the way in which these wonderful bodies of ours grow, and what they require for perfect growth. I shall indicate what *nature* has to do, and what *we* have to do in the grand work of growth—and by an examination of our present habits of life, I shall search out the causes of evil—the way in which we defeat the designs of nature, and produce our present condition of suffering. In the course of my remarks, I shall notice some of the important functions of our economy, and state the conditions of their normal action, dwelling on such points of physiology and hygiene as bear directly upon our subject. And lastly, I shall consider what changes we may accomplish in the arrangements of practical life, by means of which the truth we have gained may become a living fact, moulding our lives

for good. And I trust that our efforts may have the influence of all earnest endeavor, in hastening that grand future when man shall attain to the harmonious action of all his powers, and bear once more the image of the Creator !

GENERAL PRINCIPLES.

I ONCE travelled through one of the most beautiful districts of South Wales, in the inside of a stage-coach. I had heard much of the loveliness of the country, the perfection of its cultivation, and the admirable idea which it would give to a stranger of the peculiar beauties of an English landscape. Accordingly I set off full of eager curiosity, and with my eyes wide open. But unfortunately, I was inside a stage-coach—the miserable little windows confined my view to a most limited scrap of the landscape. If I put my head out of the window, I was jerked to one side, or blinded by dust from the coach wheels, so I was forced to sit still, and content myself with details—now an ivy-covered cottage, then the wall of a gentleman's country-seat, and then a picce of a distant mountain—in short, I gained no idea of the scenery at all. But coming back, I was resolved to take a different course—so availing myself of English usage, I made a bold effort, and *mounted on top of the coach*.

Then all was changed in an instant—the whole landscape lay, a beautiful living map all around me—the eye could take in at a glance the grand features of the scene—the distant lines of blue mountains, the winding river with its craggy banks crowned by an old castle—the wide expanse of forest and rich pasture land—then, the details which confused me before, assumed their true relations—the ivy-covered cottage joined itself to the village, clustering amongst the trees—the garden wall no longer hid the beautiful park and gardens—in short, from my elevated position, I could take in the whole, and consequently understand fully all the parts.

Now, this little travelling experience may serve to illustrate our present position, and show you why I wish to occupy your attention to-day with laws and general principles, rather than with what might seem at first sight more practical matters. It is because in this way alone I can give you that clear understanding of our subject which its immense importance demands, and give to the details of practical application their due position and effect.

In our daily life we deal with facts, with the specialties of knowledge ; but it is only by knowing the general laws and principles which govern these facts that we learn their significance, and ascertain their bearings, and are thus able to guard their truth from mistake and misdirection. I might tell you how to feed and educate

your children, how to meet disease, and the many formidable evils of our society, but my instruction would be confused and soon forgotten, if I did not first impress upon you the leading principles which will include all our facts, and in accordance with which all permanently useful action must be carried on. These principles will be our observatory, our coach-top, from which we will view the prospect before we attempt to enter a cottage, or visit a country-seat. Let me invite, then, your earnest attention to those laws which will so greatly aid us in our practical studies.

The first one, which is the foundation of all, is the *law of exercise*. Movement and existence are identical, or at least inseparable. The new-born child wakens to life with a cry. The planet announces its existence by a rapid revolution in its orbit. And every star, shrined in the crystal heavens, though parted from us by a space which the mind fails to comprehend, displays to us through that immense distance, by its changing light, the same lesson which we learn from the tiniest blade of grass—that motion, action, exercise, is the universal law of being—of every existence, however organized, and to whatever end, destined in creation.

And this movement is exercise in its largest sense; it is preparation for a use. Though working in modes as varied as the subject, it is fundamentally the same in all.

Exercise is movement, working its appropriate effects, according to the constitution of each being. It is not necessarily connected with volition. Look at the child resting in profound sleep in its mother's arms—it lies so still, so very tranquil in its rest, that the mother in sudden fear lays her cheek to its lips, to assure herself of its gentle breath. Yet every part of that small frame is at that moment subject to the law of exercise—each organ is busy with its own proper life, collecting its materials, forming its products, appropriating them to their uses, and growing by its work. Tranquil as that little child seems, it illustrates most fully the lesson taught us in every sphere of existence, that exercise is the great law of life!

The history of nations illustrates, in a higher sphere, the existence of this law, which we see ruling the whole creation. The conscious exercise of power, increasing activity, widening aspiration, mark a living race of men. They may sleep for a while, but underneath the veil of sleep new powers are growing, new thoughts are germinating, and with profound activity, the nation prepares for a sudden outburst of visible life, which is but the result of that long and invigorating repose—a repose in which there was no languor, no cessation of the great law of movement, but only the concentrated and hidden action of the period of preparation.

As we search through the wide universe, and find

every where this principle of activity, we must necessarily find it also the law of the human being—for in the individual man is gathered together every law and every department of life. He is the mirror of creation, and higher than all; capable of supreme dominion by representative possession of all the natures put under his control, and qualified for this benign office by his universal sympathies. In him, therefore, should be found the brightest expression of every law—and, accordingly, nowhere do we find more beautifully exhibited, or in more complete and varied form, the fundamental use, the imperative necessity of exercise.

It is by exercise only that man grows; it is only by the activity of each function of the body, of each faculty of his spirit, that he recognizes its life; for until existence is justified by use, it may be in preparation for life, but it does not yet live.

Every act of daily life is a perpetual illustration of this truth—we cannot cease to act, even if we would—the *organic* life of the body goes on whether we sleep or wake—the heart continues to beat, the chest expands, the nerves convey their penetrating influence unceasingly, the busy thoughts will flit through the brain, whether we will or no, and while life remains there is no possibility of avoiding this overmastering necessity.

And what miracles are wrought by this law, when controlled by the will of man! No artist, no orator,

no mechanician, springs fully formed into life. The impulse is there—circumstances may favor, but it is only by perpetual exercise, by gathering wisdom from every failure, and new strength from every success, that the hero is developed; it is only by use that his powers grow, his will lends the energy of his life to the special purpose, and thus, by repeated efforts, he reaches the perfection, at which the world gazes with wondering admiration.

Go into a poor tailor's work-room, look at the weak, pallid form of the workman, with bent and trembling limbs, and unsteady steps—then go to Niblo's and look at the finely-developed frame of Antoine Ravel; see the inimitable grace and vigor of his movements, his miraculous dexterity, the sovereignty which he has obtained over the body—and in this strange contrast between two human brothers, endowed with the same original powers, the same capacity of development, we learn the mighty power of the law of exercise in the physical world. These men belong to the same race—they hold their existence under equal laws—the *difference between them* illustrates the rewards and penalties attached to those laws.

The infant-man is *born* meet for the *inheritance of this life*; but he is subjected to a long infancy of discipline for the duties of his existence—by *self-culture*, this inheritance must be gradually acquired; his faculties must enlarge, and then be tasked again for still

further growth. Indeed, this indefinite development is the proper end of his existence. Rather what he *shall become*, than what he *shall do*, is the aim of all achievement, for his works must perish to make room for better works continually, but *he* must live for that better work.

The power of exercise is strikingly seen in the growth of certain special faculties—thus the connoisseur in wine will discern the age and country of his favorite beverage, by simply tasting a few drops—the deaf and blind will recognize their friends by the sense of touch, and even by smell. The pen of the ready writer, the tongue of the fluent speaker, the ear of the conductor of an orchestra, are wonderful examples of the enhanced mental and bodily power, under appropriate training. This is shown in the moral as in the intellectual life; the strength and government of *emotion*, as well as the power of thought, exhibit the influence of exercise, and prove its necessity in every range of existence.

This consideration of exercise, as the only means of growth, as essential to the development of every faculty of body and soul, leads me to the second great principle to which I would call your attention, viz., The law of Order in Exercise. This principle should receive our most earnest thought, for it is of immense practical importance—it is the fundamental law of harmonious growth, for though life may be carried on, and the powers unfolded, under the general law of movement, yet life will never

reach its true end, the faculties will never attain their due power, imperfection, disease, vice, will appear, if the Divine *Order* of Exercise is not observed. And the study of this principle is the more pressing, because those faculties in which order may be neglected, that range of our being, viz., where the free will of man rules, are the highest, the crowning parts of our nature. To a certain extent, the world and our own humanity are placed beyond our direct action. Our organs will act, our brains will think, our earth will continue its revolutions independently of our will, and in those regions of existence the Divine Order in movement is observed—but the great object of our life is not simply to live, but to *live well*, to attain perfection—a perfect body, a noble soul—to destroy all discord and sin, and become an element of harmony in the great universe of worlds. Now this noble object, this highest end of our life, is subjected to our will—not our life, but the purpose of our life, is under our own control. Subject to the universal law of exercise, it is for *us to determine*, whether we will establish the Divine Order of exercise, in our most important relations—and as in all things which are subject to our will, knowledge does not come intuitively, but we must study, observe, learn from experience and reflection, so in the knowledge of the true order of growth, which is essential to our well-being, we must seek in order to find—we must recognize and intelligently apply it. The

law of Exercise had only to be pointed out, to be at once received as an essential principle of life—now let us see if the law of *Order* in Exercise will not also indicate itself as an essential principle of true growth.

We have seen in every realm of Nature the ceaseless activity of life. We have watched the full-orbed planet revolving in splendor in its mighty orbit. How came it there? The patient astronomer, gazing steadfastly night after night into the distant heavens, attains at last even the birthplace of the stars, and reads to us the lesson of order in their growth. There, in the immeasurable realm of space, he points us to a faintly-glowing mist, thin, uniform, unchanging, we cannot guess its meaning—he directs his telescope to another point in the heavens; again we see that pale, widespread mist, but the circumference seems more transparent, the centre still undefined, but denser and of brighter glow—again he shifts the glass, and the mystery is explained—the centre has grown dense, bright, round—the mist is becoming transparent, absorbed in that bright centre, that new and rapidly-growing sun—and brighter it will continue to grow, the movement impressed upon it become more decided, till fully formed and subject to its law, it starts majestically upon its appointed course.

How did our earth attain to its present beautiful form, and become so admirably adapted to the residence of man?—layer after layer was formed—the solid

ground, the water was there—but no organic life—the time was not come. The work continued slowly, steadily, but the sun shone down for many centuries, the stars continued their silent watch for thousands of years, before the first blade of grass, the first tree, the first insect appeared on the silent earth—but even then the end was not reached—ages had still to roll on—the wild gigantic forms of plant and animal must change, and earth harmonize her products, and her climate, and her soil, before the crowning glory, the master of all—Man—could appear. Thus in the imperishable tablet of the mountains, on the solid layers of our globe, the geologist reads the lesson of order in growth, the steady progress to a definite end, and the impossibility of accomplishing that end prematurely.

In the moral world we mark the same law. We learn the penalty of its violation as we stand before that noble picture in our Düsseldorf Gallery—the martyrdom of Huss. Why does the noble martyr kneel there chained and crushed? why were the voices of Wickliff, of Jerome, hushed and forgotten—while Luther's rang through the world, and every country still feels the throb of his heroic heart—men as truthful, as impatient of sham, more beautiful in Christian life, had been lost to the world—the right moment had not come. The Divine order of development must be obeyed—the age was ripe for Luther, therefore he succeeded.

In individual existences, in the life of nations, throughout the wide realm of Nature, every where we behold a method of growth, an order which cannot be violated with impunity. We may then with full certainty look for the exemplification of this law in the life of the human being, the centre of creation. It is a truth so clear, so unavoidable, that we act upon it necessarily in a general way. No mother goes to her infant daughter for advice in household difficulties, the problems of the State are not given to the child to solve—we know that our children will become housekeepers, and citizens, and governors, in time. We have a dim perception of the order of development, and Nature, by throwing the mantle of incapacity around the child, has guarded her work from the fatal consequences that would ensue, were we able to convert the child into the housekeeper or the politician. We cannot feed men upon milk, nor babes upon strong meat; we must guide the infant steps, and wait patiently year after year, for the bones to harden, the muscles to grow strong, and the brain to enlarge. We know all this, and are forced to conform to our experience; but still the grand law of Order in Exercise, for the life of each individual, is not clearly understood by us, nor its supreme importance felt and acted upon. Nature *compels* us to its observation in those departments of life, not subject to our will. Let us follow this indication, and harmonize our *volum-*

tary and *involuntary* life, by the intelligent adoption of the true order of growth, the only method of life by which we can carry out the design of our creation.

We have pointed out the grand object of man's life upon earth—we will now examine those striking features of the human constitution, which present the conditions of growth, and which will enable us to understand clearly what is the law of Order in Exercise for the human being.

The *first peculiarity* which strikes us, is the *double nature* of man—the soul and the body—intimately united but always distinct—their functions differing in form, in material, in special objects, though harmoniously blending for one great end—they therefore require separate care, distinct education, but an education that allows of no antagonism or injury to either nature, but blends in the same harmonious way, as the natures blend.

Again we remark that there are *three distinct periods* in this double nature—the period of growth and preparation,—the period of maturity and active use,—and lastly the period of decline and incapacity. From the consideration of these three periods, epochs so well marked as to be generally recognized, we draw a most important practical conclusion, viz., that the second period of life, the age of strength and use, can only be attained, by the orderly and wise discipline of the period of preparation, and that the slightest infringement of

this Divine order will inevitably draw down the double penalty which guards the natural laws, viz., loss of all the power and excellence to be gained by conformity, and the pain, infirmity, and evil, inflicted upon disobedience.

We have thus far noted the correspondence of our double nature, in its existence, and its periods—I must now call your attention to an important *difference* which exists between them, an order of development, which complicates our inquiry, but which nevertheless points out its own requirements so clearly, that he who runs may read. Did the soul and body keep pace step by step through life, and grow with uniform rapidity, then the law of order would require, that the same care, the same favorable conditions, the same education should be given in corresponding adaptation to soul and body, day by day, and year by year. But Nature adopts variety, hierarchy, as her rule, instead of uniformity, monotony—the higher we ascend in the scale of creation, the more compound is every whole, the richer the harmony of each existence. So in the nature of man there is never a dead level between soul and body, each has its hierarchy at different periods of the human life, and *most beautiful* that arrangement is.

Each *human body* has its type of form and size, to which it must attain; it may reach this period at different ages, 15, 20, 25, no matter,—at a certain age the

body ceases to grow, it has reached its standard, the period of preparation is finished, it enters upon a new epoch. But the mind by no means conforms to this standard—the cessation of the body's growth, never marks the completion of the growth of the mind. At the age of 20, the body has acquired the command of every function, it has consolidated its power, it is fully developed—but the mind is in the full vigor of growth—it is receiving new thoughts, new aspirations, the understanding is expanding, the judgment has not begun to ripen—the growth of the mind is much slower than that of the body, and its maturity dates a much later period of life.

Here then is a marked difference in the development of our double nature, and a clear indication of the Divine Order of Exercise—the practical lesson to be deduced from it, may not be neglected. It is an observation in physiology that two organs do not act with equal energy at the same time—while the stomach digests, the brain must rest, and the muscles be in abeyance.

When we would reflect deeply upon any subject we endeavor to escape from all external distractions—we close the eyes, and put all other faculties not required, to rest, and so obtain the greatest force of those which we would employ. It is because the body entirely, and most of the mind is asleep, during our dreams that we often have in them such surprising energy, acuteness, and range

of thought and fancy. Moreover, in the natural method of Providence the faculties of human nature are not all manifested simultaneously ; some, both of mind and body appear early, others later in life. In infancy we have the appetites and affections which serve for the nurture and culture of the individual, but not till the period of mature life do the faculties and sentiments appear which establish the relations of the man to the race.

This periodicity obtains also in the aggregate life of a people. While a nation is young it has one definite object, self-preservation—it must dig, and plant, and sell, and concentrate its energies, on its growth and material consolidation—no entangling alliances, no enthusiasm for principles, must lead it to the fatal neglect of the essential elements of its prosperity, the foundation of its future greatness ; but when its fields are planted, and its manufactories are built—when its railroads cover the land, and its ships whiten the sea, when its stature is complete, its arm strong, then another object is presented for its attainment, and its light may shine forth, and its protecting power be felt by the whole world—its free soul may walk abroad amongst the nations—its voice will cheer, protect, guide—for the material prosperity will support the spirit of the people—the Divine order has been observed, the time of preparation fully completed, and the time of fulfilment has arrived.

Thus from every sphere of existence we gather anal-

ogies, analogies which always confirm a great truth; and we see in glowing light this essential principle, that the sovereignty of the body must be established, before the sovereignty of the soul is possible, for the one prepares for and is the continent of the other.

During youth the development of the body must be the first care—its strength, its beauty, the complete establishment of every function, the freest conditions for its harmonic growth, must be our ruling principle. There is no possibility of avoiding this necessity—this primary predominance of the material organization—it is Divine Law—every violation will bring its own punishment—and woe to the race where this order is systematically inverted; disease, vice, and rapid degeneracy will inevitably mark its history.

The third great law to which I would call your attention, is the *balance of exercise*, or perhaps more clearly the *compound nature of exercise*; this springs from the dual nature of all existence, essence and form, spirit and matter. I bring it before you now because it is intimately connected with our last remarks, and has the following practical bearing upon education, viz., that in no period of human life, may we attempt to separate the blended life of soul and body—in every age the wants of the whole nature must be satisfied. The sovereignty of the material organization in youth, does not exclude such activity of the mind as is necessary for the

service of daily life, and such prospective training for its future existence as is compatible with the body's present health and complete growth. So in the second period of life, when the soul reigns supreme, when mind and heart are fully developed, and the object of the individual life is accomplished, the material frame, though only of second rank, has still its rights to maintain, its wants that must be attended to. Thus every period of life, though marked by the predominance of one special principle, needs to some extent the co-operation of all other principles—the maintenance of the law of compound movement.

The last grand law to which I shall direct your attention, is the crowning law of all—the source of their existence—the centre to which they tend:—It is the Law of Use in Exercise—the universal, reason, and justifier of existence.

We cannot examine the smallest and most insignificant object in nature, without being lost in wonder at the rich uses which are developed from its tiny framework. The little plant that we trample under foot, contains within itself a whole kingdom of minute uses, essential to its being. It is linked by uses to its fellows, to the soil, to the atmosphere, to the animals, to man, to the universe, so that creation would not be complete without that tiny plant. Every being has its aim, its *special purpose*, and its *universal use*; and its high-

est welfare, its health, its happiness, is found in conforming to that use. Rank in creation is determined by use, the *greatest variety* of aims, the *widest range* of objects, and the *most central nature* of uses, mark the noblest race of created beings—those who bear the brightest image of the Creator.

By right of this incontestable charter, man takes his place in the scale of existences. Nature has generously endowed the human being with a body so perfect in its parts, so beautiful in its whole, so rich in varied uses, so delicate in its minute structures, so powerful in its collective life, such a compendium of varied laws, such a harmony of complex strains, that we can conceive of no mechanism so living, so admirable. And who can fathom the capabilities of the human mind, as it grows by the accumulated achievements of ages! There is nothing hidden that shall not be revealed to the enlarged understanding of man—no sphere of existence to which he is not linked by the infinite network of his sympathies.

What is the conclusion, then, which we must inevitably draw from these mighty capabilities in man, as illustrated by the lesson taught us in creation? That the *object* of man's existence is superior to all others—that he, of all creatures, must be the richest in uses—that every faculty of his nature must consecrate itself in use. Here, then, we receive a flood of light to guide us in

practical life, in education. We need no longer wander in the confusion of aimless details. We have a standard by which to judge every effort—the standard of use—not for a day, nor a year, nor a lifetime, but the universal use for man, the centre of creation. Guided by this Divine law of use, the free life of man will no longer be degraded by selfishness, or wasted on superficial ephemeral objects. The voluntary life, obedient to the great design, will harmonize truly with the life within, and with the life of the universe around him, and by this conformity he will accomplish his own happiness, and fulfil the idea of his creation.

I have thus laid before you the great laws of life—the clear understanding of which is essential to our purpose, because, as we have seen, they are universal in their operation, entering into every sphere of existence, and ruling alike the physical as the moral world. Being universal laws, their violation must necessarily involve its own punishment. We know that this is inevitable. The hand thrust into the fire will be burnt; the sword entering the heart will kill; dishonesty will produce distrust; there is no escaping the penalty of violated law. This is clear to all, an acknowledged fact, which I need not urge. The *fact* is universally accepted, but the *manner* in which the violation of the laws we have been considering, manifests itself, may not be so plain, and a knowledge of this may aid us in our future

studies, when we attempt to trace the connection of cause and effect in practical life; I shall therefore call your attention, for a few moments, to the evils which will inevitably result from the neglect of the preceding laws.

The first evil to which I shall advert is, imperfect development. In organized being, where a certain order of growth is established, and special periods assigned for special developments, each period is peculiarly adapted to its own office. There are certain conditions, then, present, which never occur again, and consequently the opportunity once lost is lost for ever. Thus, in the human organization, we have pointed out the period of youth as peculiarly adapted to the attainment of physical perfection. The *special* material conditions which mark this epoch, are strikingly shown in the reparation of injuries. A broken bone in the child will unite easily, rapidly, and perfectly, so that not the smallest inconvenience will be felt in after life, and the surgeon might examine the bone in vain to find the spot where fracture had occurred. Not so in the adult, still less so in the aged; the same injury will then require months instead of days to heal, and the union will be accomplished clumsily and imperfectly, or the reparative power of the system may be entirely exhausted, and the fracture may never unite. An endless variety of illustrations might be given to prove the same point, viz., that there are peculiar con-

ditions of the physical organization in youth which are presented at no other period, and consequently the work which should be done then, can never be accomplished later in life.

Again: as this is the special period of material growth; as the body is the key-note to which all sounds must vibrate; if this fact is neglected, if the care and education which the physical nature demands is curtailed, if a multiplicity of other objects is forced upon the attention, then the work which should be done at this time is necessarily only partially and imperfectly performed.

There is a vast labor to be accomplished—the change of an infant into a man—and only a definite time to do it in. Nature works with wonderful rapidity. She works as she never works at any other period of life—every moment is precious. If, then, the conditions which aid her are not presented, if the *necessary co-operation of the mind* is not given, the work cannot be accomplished—the parts are weak—the whole is incomplete; the body is unable to meet the demands made upon it in after-life; it bends down under the burdens which it should support with vigor and grace; it is weak and irritable—striving to attain to its proper strength, but unable to do so, as the conditions for its growth are no longer afforded, and the demands made upon it by a later period of life are incessant and heavy. It strug-

gles in vain ; it has the neglected work of yesterday to accomplish, together with the proper work of to-day. The ripening comes upon the retarded growth of spring, and imperfection, disease, is the result.

Another evil arises directly from the imperfect development of this period of life, and increases the original mischief, by that vicious circle of suffering that always springs from violated law ; it is the anticipated development of powers appropriate to a later period of growth.

We have seen that it is not possible to carry on two diverse functions, or strive for two objects with equal energy at the same time, and perform either act with the same perfection that would have been given to one only. This is eminently true in growth ; we cannot let the body alone ; it will be helped or hindered by our actions. There is a large amount of disposable energy—a reserve of vital force—in every individual, from the child upwards, which is available in moulding the life, in directing the operations of nature, in hastening or retarding the epochs of existence. The welfare of the body demands this aid in growth ; but if, instead of complying with the natural design, this provisional energy, this mental force be directed to the objects of a later period of life, the nature will grow disproportionately in that direction, and a triple evil will result ; the material organization neglected will suffer for want of its proper opportunities of growth ; the intellectual powers will suffer

from the strain of premature exactions ; and an unsound mind and an unsound body, acting and reacting on each other with accumulating evil, will produce diseases of mind and body, corresponding to the injury which they suffered. The standard of excellence which might have been attained, is never reached.

Another vice of growth, is the undue development of any portion of the organism which springs from the neglect of the third and fourth general laws which we have laid down. Imperfect and premature development are the peculiar dangers of *youth*. The undue exercise of certain faculties of our nature, is the evil to which the *later period of adult life* is chiefly liable. It is a vice of the spiritual rather than the material nature. It proceeds from the substitution of partial, limited uses, for the general and higher uses which should rule human life. The housekeeper tends to become more and more a housekeeper, simply ; the merchant to absorb his life in commerce, because the necessity of each occupation, the beautiful truth and fitness that exist in them, have blinded them to the true range of those occupations. They are of great utility ; they have a universal meaning, when considered as parts of a great whole ; but, when they absorb the human being ; when they shut him up from the wide range of human interests ; when they become *The whole* ; then they are mean, degrading, ruinous to the noblest objects of human life—they convert the free soul into

a domestic tool, or a calculating machine. Nor is this absorption in one subject, or this development of one faculty, necessary to excellence in any department of life. One law never contradicts another law. Predominance, hierarchy, is the rule of life, not exclusion, and each faculty is refreshed and strengthened by the due exercise of every other. Let individual taste and talent direct to special occupations, *but then* throw open the nature to the influences of the whole universe.

One more evil I have to notice, viz., the misery which must result from the entire violation of our last law—the law of use. We have just considered the evil of undue exercise of any portion of our being—the conversion of a temporary object into the supreme end. We would now speak of the *aimless existence*—that strange anomaly in creation, a human being with nothing to do. Most miserable, worthy of most profound pity, is such a being. The most insignificant object in nature becomes a source of envy; the birds warble on every spray, in ecstasy of joy; the tiny flower, hidden from all eyes, sends forth its fragrance of full happiness; the mountain stream dashes along with a sparkle and murmur of pure delight. The object of their creation is accomplished, and their life gushes forth in harmonic work. Oh, plant! oh, stream!—worthy of admiration, of worship, to the wretched idler! Here are powers ye never dreamed of, faculties divine, eternal; a head to think, but nothing to

concentrate the thoughts ; a heart to love, but no object to bathe with the living tide of affection ; a hand to do, but no work to be done ; talents unexercised, capacities undeveloped ; a human life thrown away, wasted as water poured forth in the desert. Oh, birds and flowers, ye are gods to such a mockery of life ! Who can describe the fearful void of such an existence, the yearning for an object, the self-reproach for wasted powers, the weariness of daily life, the loathing of pleasure, of frivolity, and the fearful consciousness of deadening life—of a spiritual paralysis, which hinders all response to human interests—when enthusiasm ceases to arouse, and noble deeds no longer call forth the tear of joy—when the world becomes a blank, humanity a far-off sound, and no life is left but the heavy, benumbing weight of personal helplessness and desolation.

Oh ! happier far is the toiling drudge who coins body and soul into the few poor shillings that can only keep his family in a long starvation ; he has a hope unceasingly to light him, a duty to perform, a spark of love within that cannot die ; and wretched, weary, unhuman as his life may be, it is of royal worth—it is separated by the immeasurable distance of life and death from the poor, perhaps pampered wretch, who is cursed by having no work to do.

Noble work ! Welcome struggle, suffering, torture, if that be our path—it is bliss, it is angels' food, if so

we may accomplish our destiny—if so we may fulfil a Divine use !

Thus, my friends, our first object is attained. I have in a very general way indicated the great principles, in accordance with which all wise action must be carried on, and I have noticed slightly and hastily some of the evils which must necessarily attend their violation. The propositions may have seemed abstract, and their connection with the subject of physical education remote ; I may seem to have treated more of the mind than of the body ; more of the universe than of man. But we shall find, on the contrary, as we proceed, that these laws are intensely practical in their application, the details into which they flow are the only really practical things in existence, for actions based upon them are truths, all else is falsity and sham. Every fact of our daily lives, which is not filled with a spiritual existence, with a principle that can be carried out into the wide universe, is a vanishing phenomenon, it has no real existence, it can give us no aid in moulding our lives, in improving our condition. The laws which I have endeavored to lay before you are the laws by which we must eat, and drink, and sleep, and to your most earnest thought, to your continual remembrance I commend them. Their universal nature is the guarantee of their truth ; for in the wonderful whole of creation no part is separated from the rest, mind and matter, body and soul, substance and

form, are essentially related. The creation is filled with the Creator !

In my next lecture I shall proceed to the consideration of functions, to the special laws which regulate our physical life, and their manifestations.

I shall explain the marked difference which exists in our physical life between the powers over which we may exert an almost creative influence and those to which our action is but indirect. The latter will be the first subject of our consideration ; and I propose in the next lecture to show how far the organic life of the individual may be influenced by us, what are *its rights* and *our duties*. We shall then be prepared to examine intelligently those powers which are placed immediately under our control, and on whose development our highest physical well-being rests.

ORGANIC LIFE.

IN my former lecture I laid before you the general principles on which all existence is based, viz. : 1st, the manifestation of life only by movement or exercise ; 2d, the development of life in a definite order of movement, shown in the human being by the predominance, at different ages, of the different elements of his double nature—first the material then the spiritual nature ; 3d, the compound nature of movement ; and 4th, the end of all movement, viz., the law of use. I stated that it is in accordance with these principles that our human life should be regulated, and I then pointed out some of the evils that must inevitably result from the neglect of these, viz., imperfect, premature, undue development, or even the complete annihilation of true life.

We have seen the supremacy of these laws in all spheres of being, but it is my purpose to *limit* our *inquiry*, and examine *only their application to the physical nature of man*, THE LIFE OF THE BODY ; and

this order of examination is not only accordant with the plan of nature, but it is the one which my duty, as a physician, would especially lead me to adopt. And though, according to the law of compound movement, I shall have occasion frequently to refer to the intimately connected spiritual nature, such references will always be subordinate to our main inquiry.

I wish to make you intimately acquainted with the life of the body, so that you may realize fully its importance, the veneration which it should inspire, the attention which should be given to it. I shall open to you its wonderfully complicated and delicate mechanism, show you how it grows, and how it becomes strong and perfect, and how we may aid or injure this beautiful growth. To do this I shall not lead you through long anatomical descriptions, nor give you sketches of disease, nor even present you with much physiological detail; that would certainly be a much easier plan for me, and I could so give you lectures, ad infinitum, but the benefit to you would be highly questionable. If you wished to enter as medical students no subject would be irrelevant, no details useless, and to every such earnest worker I would gladly render aid, and give the right hand of fellowship, but that is not our present object. The studies in relation to the body, necessary to the MEDICAL STUDENT, and to the *woman who would intelligently* perform the noble duties of a mother and a

rational member of society, are widely different, and it is productive of much mischief to attempt to mingle the former with the latter. A certain degree of anatomy and physiology you may obtain—you have probably obtained from some of the many popular works on those subjects. My object, as I have stated, is an eminently practical one. I wish to show you how to make the human race stronger and more beautiful. I must therefore digest for you the endless multiplicity of medical facts, and present you with the result thus obtained. I must give you knowledge which you can use, and teach you how to use it, and I trust that our studies will possess that deep interest and put forth that moulding force which belong to use.

The first fact to which I would call your attention is the *limited range* of our power over the body. Our will is able to accomplish a great many things, but there are also many for which it is completely impotent. We cannot stop the beating of the heart, nor change its method of action; we cannot alter its type; we cannot educate it; we may kill but we are unable to govern it. We cannot teach the lungs to inhale carbonic acid gas, nor can we learn to do without breathing. Yet we may *remain inactive for years*, the limbs that were meant for motion may be forced to constant repose, and life will still continue; the hand may remain idle by our side, or learn to move with wonderful agility over the notes of a

musical instrument. The Anchorite may bind himself by a vow of silence, and permit no sound to escape his lips ; or, he may train his voice to the production of melodious strains that will draw forth tears of admiring delight. But, should we force the stomach to a state of constant repose, or provide it with indigestible materials, we should speedily pay for the attempt with our life. The early germ of life is beyond our management ; we cannot change its type nor its manifestations ; but our power over the intellectual and moral life of childhood is so great, that we may be said almost to create it ; we may leave the brain in a state of inaction—of constant slumber, while the rest of the body grows daily towards its maturity. And yet there is no faculty of body or soul *completely* withdrawn from the influence of our will. Stomach, heart, and lungs may all be injured by us, they may also be greatly aided in their work by our help, and the great fact of human generation may be powerfully affected for good or evil by the conditions with which we surround it. When we consider this confused multitude of facts, proving both the potency and the impotency of the intelligent human will to affect the growth of the body, it becomes a matter of essential importance to us clearly to understand the *limits* and *nature* of our power, that we may neither waste our efforts in attempts to perform what the Creator has placed beyond our reach, nor neglect any valuable oppor-

tunity for accomplishing wisely the part which is clearly allotted to us as free, intelligent, and progressive beings.

Now we shall find in the double nature of man, the life of the body and soul, the explanation which we need to direct us. The true life of man, the life of the soul, only proves itself by its manifestations, by speech, expressed thought, by action, by social and national relations, and all those various forms of incarnated soul which we call art, science, religion. All this external life is simply the *relation* of the inner life, the soul, to man, to nature, to God, and the only way in which this inner life *can* so express itself, is by employing the body as a medium. But if we could take from man the power of speech and movement, the electric glance of the eye, the language of touch—could we even paralyze the greater portion of the brain, and thus deprive him of every possible method of displaying the life of the soul, the individual would still live on, the stomach would continue to digest, the liver would still carry on its complicated processes of vital chemistry, the lungs would breathe in the purifying air, the heart would distribute fresh blood to every part of the body, and the warm living tint of the skin would indicate the continued existence of organic bodily health.

Here, then, we have at once a broad distinction between the *organic* life of the body, which is self-supporting and independent of individual will, and the

related life of the body, which is the necessary instrument of the mind, directly under its control, and capable of immense development. The *organic* life has a fixed type of its own, we cannot educate it, each organ has its special peculiar use, to which any action of ours would be an impertinent interference, but the *related* life has our highest interests as its object, our interference is *essential* to its growth, it is capable of a wonderful education. The reason of this striking difference is evident from the order of movement which we have already observed. The lowest and coarsest forms of being always appear before the higher. The body is first in the order of development, it has to prepare for the mind, every function is fully and permanently established before the intelligent will makes its appearance; the body must therefore necessarily have its own independent laws in the child, and it remains through life independent of the experiments, the mistakes, and the long-continued efforts by which alone man can acquire knowledge—a fixed point, without which we could make no exertion; a broad firm foundation-stone, on which we may build the beautiful edifice of a noble life.

By the organic or involuntary life of the body, we mean the active life of those parts of our material framework which would be necessary to keep the body alive if we had no souls; thus the action of the heart, lungs,

stomach, skin, &c., belongs to the *organic* life, while by the related or voluntary life we indicate those parts of our physical organization which are the direct instruments of our intelligent will, the brain, senses, and muscular system.

Having thus found the first division which our subject clearly presents, you will readily perceive that my remarks on "The Laws of Life, with special reference to the Physical Education of Girls," will chiefly refer to the *related life* of the body, towards which we have so important a part to perform; but as we have already seen there is no such thing as simple isolated life in the universe, so our will may powerfully influence the *organic* life of the body, and its connection is so intimate with every part of our human nature, that I must *first* call your attention to this division of our subject before we shall be prepared to take up the important second branch.

Let us *consider then the Organic Life of the body, and the way in which we can aid this life.* We have seen that each organ has its own special work to do, and understands better than we can the best method of doing it. Therefore, in the *organic* life of the body we are not called upon either to *furnish an object*, or to *educate any part to attain a certain object.* Our part lies solely in placing the body in a position to work; in other words, our duty to the organic life consists in furnishing

the following conditions, viz. : 1st, *freedom to work* ; 2d, *materials to work with*. In these *two rules* lie enfolded our most important duties to the body. *Our first duties*—for before education is possible the observance of these laws are essential to the life of the infant ; *our last duties*—for when the aim of human life has been accomplished, when the related life of the body, having finished its work, grows weak, and the period of separation approaches, with the most diligent care we must observe these rules by which we can most effectually cheer the declining life of the aged ; and through the whole period of youth and manhood, if we would prevent sickness, if we would strengthen the whole nature, if we would prolong life, we must never cease to perform our first grand duty to the body, that corner-stone of physical well-being, freedom to work and materials to work with.

Let us examine more in detail the application of these principles, and see how clear a light they shed upon the relation of our free will to every period of existence.

Look at the first faint gleam of life, the life of the embryo, the commencement of human existence. We see a tiny cell, so small that it may easily be overlooked ; the *anatomist* may examine it with scalpel or microscope, and what does he discover ? Nothing but a delicate, transparent membrane, containing one drop of clear water ; the *chemist* may analyze it with the most ser-

pulous care, and find nothing but the trace of some simple salts. And yet there is in that simple germ-cell something most wonderful—life!--it is a living cell; it contains a power of *progressive growth, according to laws, towards a definite type*, that we can only regard with reverent admiration. Leave it in its natural home, tended by the rich life of the healthy maternal organization, and it will grow steadily in the human type; *in no other by any possibility*. Little by little the faint specks will appear in the enlarging cell, which mark the head, the trunk, the budding extremities; tiny channels will groove themselves in every direction, red particles of inconceivable minuteness will appear in them—they move, they tend towards one central spot, where a little channel has enlarged, has assumed a special form, has already begun to palpitate; finally the living blood in the small arteries joins that in the heart, and the circulation is established. From every delicate incomplete part, minute nerve-threads shoot forth, they tend inevitably towards their centres, they join the brain, the spinal marrow, the ganglia. The nervous system is formed. The cell rapidly enlarges, its attachments to the maternal organism become more powerful, for increasing amounts of fresh nourishment must be conveyed to the growing being, the work advances to perfection, each organ is distinctly formed, placed in the cavities of head, chest, and abdomen, that are now completely closed; the human

type is surely attained, and after a brief period of consolidation the young existence, created from that simple cell, will awake to a further development of independent life. Throughout this period of early life we remain spectators merely of the wonderful growth; it would be impious folly to attempt to interfere directly with this act of creation; but even here, in this early stage of existence, we have *important aid* to render. We must, through the maternal organization, present the essential conditions, freedom to work and materials to work with. And the duty is imperative. Observe our action is indirect. No mother can determine the sex or appearance of the child; she cannot amputate a limb or disfigure the body by any direct violent action of her will; but the state of her health, the disposition of her mind, her habits of life, will materially affect the growth and influence the future constitution of the child. The most powerful action is not sudden and violent effort; earthquakes and revolutions are destructive, not creative; every really important change, every admirable and lasting growth, is the result of long-continued action, working silently but constantly in the right direction. This is true of all kinds of growth. The young sapling may be bent to the earth by a violent storm, and it will shortly recover its position, and shoot up tall and straight, under the genial influences of earth and sky; but plant it on the mountain side, exposed to the constant action

of the sea breeze, and though no change in its position is perceptible in a single day, yet it is surely growing in the direction of the wind, and it will soon show, in its bent form, how much more powerfully the *constant invisible* influence has affected its growth, than the sudden evident action of the storm.

Such favoring influences are found in the daily life of the mother, during the early period of embryonic existence, in the cheerful sunshine of the spirit that should so naturally enfold the new centre of many hopes, in the observance of those important rules of hygiene, regular habits, early hours, periodic exercise, cold bathing, plain wholesome food, and loose comfortable clothing; these rules are simple, easily understood, not difficult to be observed, yet are they of *immense importance*—they are the *favoring circumstances* of growth, they are *our part* in the work of creation. Then, surely, they never can be neglected by the wise mother who has once clearly recognized their high use. No frivolous pleasure, no petty cares, no serious sorrow even, will induce the true mother to neglect the healthy rule of life, or disturb the cheerful serenity of her spirit, when she is thus directly the handmaid of the Creator.

We have watched the first development of embryonic life, and its gradual attainment of the human organization. *Now*, an immense change occurs in the life of the little being—it is born, and remains henceforth subject

to influences with which we are familiar, and under our immediate action. Previous to this epoch, notwithstanding the vigorous principle of life so evidently displayed, its existence was a mystery to us ; we cannot understand a method of growth, whose conditions are so different from our own. But the child is born, we recognize the kindred claim at once established, it is become one of us, and direct and urgent duties are now opened to us.

It is one of us, but yet how different ! every part of the body has to change its *proportions*, and the *quality* of its structure, to attain the perfect type. The head and abdomen are of undue size, the brain is soft, there is not a solid bone in its body, the liver is enormously large, the stomach and intestines irritable, and the skin of extreme delicacy. In every fibre of the infant organization, I could point you to these differences, which mark the transition epoch between two different states of existence, and indicate the plastic condition of the little being, which requires only favorable conditions to be moulded by the gentle hand of nature into the perfect human form.

What are those conditions which constitute its freedom to work ? 1st. Unimpeded movement of every part of the body—there must be no pressure, no constrained position. In the large Lying-in Hospital in Paris, La Maternité, the old practice of swathing the infants is still observed ; the lower limbs, each one enveloped in a

fold of linen, are stretched to their fullest extent, and closely bound with thick cloths, which effectually prevent any movement in them. Every mother who has watched the evident delight with which the little limbs move, under the gentle friction of her hand, and observed the instant response of every part of the body to every painful or pleasurable sensation, will feel the torture of such a method of constraint; and it has made my heart ache in seeing these poor little mummies unrolled, to observe the half-paralyzed condition of the little limbs, which would gradually recover their activity with their freedom, only to be again tortured, under the foolish idea of *straightening the limbs*—the surest method, certainly, of defeating the object—for by substituting the violence of external constraint, for the gradual and strengthening method of growth, by which nature straightens the *naturally* flexed limbs, they remain weak and imperfectly developed, and when the child begins to crawl or walk about, they inevitably bend under the burden they are not prepared to support. Now though this practice of swathing will seem an unnatural and cruel custom, it should be borne in mind, that any amount of confinement by clothing or position, differs only in degree, and produces, to some extent, the same discomfort to the infant, and the same injury to growth; an intelligent care should, therefore, be exercised in the construction of the clothing, in the application of bands, and in the manner of nursing, that

the perfect freedom of the body shall be preserved, and no part of the soft, tender frame be compelled to bear an undue burden.

Another condition to be observed, is the warm temperature necessary to the infant. I might say the warm, living atmosphere of human affection necessary to it; for it is very certain that we cannot raise children upon chemical principles; and though it is impossible to reduce the maternal influence to vital electricity or any scientific formula, or clearly understand the peculiar action of affection on the irrational infant, it is none the less certain that human heat, whether spiritual or material, is the most genial atmosphere for infant growth. It is the want of this which is one cause of the great mortality in foundling hospitals, where the little nurslings lie the greater part of the day in cribs alone. The utmost care is taken to supply every external condition on the most rational and scientific principles—the nurseries, admirably clean, are warmed with great care—but there is no home like the mother's bosom, with its living warmth and nourishment. This gentle, penetrating heat is essential to this period of life, for the infant possesses, in extreme measure, the irritability and delicacy which *always attend rapid growth*, without the power of *reaction* which belongs to consolidated strength; it is, therefore, peculiarly sensitive to changes, to violence of any kind, and its heat is withdrawn with remarkable rapidity.

Perfect cleanliness is another condition of growth, and I need not enlarge upon this. Every observer has seen how easily the skin is acted upon in infancy, by the secretions of the body, either from neglect of thorough washing, or change of clothes—and it should always be borne in mind, that the invisible effects extend farther than the visible, and that the evils of uncleanness are *not limited to the sore on the skin*, or the inflammation of the eyes, but extend by a thousand unseen ramifications through the whole economy, hindering and injuring the work of nature.

Our second rule in aiding the organic life of the body, is to furnish materials for work; and under *this* head let me call your attention particularly to the life of the *Lungs* in the infant, and the material which we are bound to furnish them, viz., pure air. There is no organ which changes so remarkably at birth, as the Lungs. There had previously been some degree of functional activity in every other part of the body. The stomach and intestines indicate that digestion had taken place to some extent. The heart beat with extreme rapidity, free movements of the body had often occurred; but the lungs had remained entirely impassive, tightly folded together, they had contributed nothing to the life of the child; now, in a moment, all is changed—with the first inspiration, a new sphere of existence is opened, the lungs, hitherto useless, become at once the *mainspring*

of life. How eagerly we await that first inspiration ! The mother, forgetful of weariness and suffering, lifts her pale face from the pillow, and listens with her whole soul. The physician, profoundly penetrated with the mystery of birth, bends in suspense over the little being hovering on the threshold of a new existence—for one moment they await the issue—life or death !—the feeble cry is the token of victory—the mother's face lights up with ineffable joy, as she sinks back exhausted, and the sentiment of sympathy, of reverence, thrills through the physician's heart.

That moment, my friends, is prophetic of the important part which the lungs play throughout the whole period of our existence—life and death wait always on our breath, not from any fear of its sudden cessation—a violent death-blow, but because, with the air we breathe, poison or nourishment enters into the most secret recesses of our organization. Vitiating air—air laden with human exhalations, with impure odors, with miasm—air deprived of its natural properties, overheated, becomes poison to the human body—not to the lungs only—it reaches every fibre of the body—the cheek grows pale, the skin loses its healthy hue, the flesh becomes soft, the eye dim, the organs grow weak, their functions are imperfectly performed, nutrition becomes perverted, and disease inevitably appears. Such are the results of impure air on the economy, more or less slowly, as the case may be.

So slowly, sometimes, that the cause is quite overlooked; but there is no neglect which more surely undermines the constitution, than the continued breathing of vitiated air.

When we think, then, of the extreme susceptibility of infant life, of the immense importance which the lungs have all at once acquired, of the imperfect ventilation of our houses, and the many ways in which the air is spoiled, we can understand the dangers which must arise from the neglect of this point, and the constant care with which we should strive to supply to the lungs their pure, unfailing nutriment. No one can have failed to notice the tranquil, smiling slumber, which will last for hours, as the infant is carried in its nurse's arms in the fresh air of park or garden—it will fret and fume and torment a household in doors—but protect it well and send it out, and the gentle air and movement prove the most happy anodyne—a charm after nature's heart. We should do well to meditate earnestly upon that peaceful slumber.

We have another duty to the infant, under our second head, viz., the supply of food, and it is well that nature has so clearly provided the suitable food, that we have only to follow her indications as closely as possible. Breathing, eating, and sleeping are the main features of infant existence, and we must provide for the free exercise of these faculties, with religious care. The prominent place which the *alimentary canal* holds in the infant economy, would be indicated by reason alone,

when we consider that rapid growth has to take place, and air and food are the means provided for this growth. But actual observation confirms this view ; the alimentary canal, measured from its two extremities, is in the infant twelve times the length of the body, whereas in the adult it is not more than eight times that length. It is suited to the mildest nutriment, it is easily acted upon ; it works and rests with equal rapidity. The rules of digestion, therefore, that apply to the adult, are unsuited to the very different organization of the infant. A little nourishment, frequently taken, at regular intervals, is the plan indicated by nature. The changes which occur in the alimentary canal, *in the power of digestion*, and *the wants of the individual* in relation to food, during *the period of youth*, form, by the visible effects which they produce, *distinct divisions* of this period, which aid us greatly in obtaining a clear general view of the wants of youth, and our duties in relation to it. For these material changes have a profounder meaning than the simple appearance which is obvious to all—they work changes in the whole life of the young. The gradual unfolding of the soul is, in truth, deeper, more wonderful, than the development of the body ; it is the object of the latter—these material changes are the words which the soul utters ; and they become constantly more significant, as the body advances to perfection.

Now, in pursuing our inquiry, viz., our duty to

the organic life of the body, we need to cast a glance over the whole period of youth, in order to see how far the duties we have already pointed out are modified by the different stages of growth. Let us consider the distinct epochs of youthful existence.

We observe first in order, this early period of infant life, when the delicate being seems just learning to live, striving to strike its little roots into our soil. The next epoch is marked by the appearance of the first teeth—a new instrument is given, a wider range of life allowed, and thus with the first teeth appear the first harmonic movements, the first attempts at walking; a period of rest, of consolidation, follows—then preparation is made for new efforts, and at seven years old the provisional teeth begin to make way for the permanent and more important set; but *this* set cannot be so quickly completed, they have much weightier duties than the milk teeth to perform—they must last through life, and be strong for the service of manhood as well as childhood; the principal part may be changed by the tenth year, but the completion of the permanent teeth may be delayed till the seventeenth or nineteenth year. The last epoch in the period of material growth is the age of puberty, which, as it is the change of most importance, is also the longest in preparation and in completion—it is, in fact, only from the *twentieth to the twenty-fifth year* that the body has finished its growth, become strong in all its parts, and fit for the exercise of every function.

We have, then, these distinct epochs in the youthful life of the body. Birth, first dentition, second dentition, puberty ; each epoch being preceded by a time of preparation, and followed by a time of consolidation. There are successive waves of growth, before high water-mark is reached ; and each successive effort is of far greater importance in the scale of existence than the preceding one. It is more lasting in its effects, and wider in its range of action. Besides this *progressive importance* in the growth of the body, there is another point to which I would direct attention, viz., the *successive excitements* to which the body is thus subjected. Growth is not one slow uniform progress, but a progress with frequent accelerations ; and at these special periods of excitement, the body is peculiarly susceptible to good or evil influences. Let me illustrate this point, which is of great importance. If a finger is burned, the effects are not confined to the immediate spot—a knowledge of the evil is at once telegraphèd through the body, and preparations are made to remedy it ; the pain and heat extend, the whole hand, or arm, becomes exquisitely sensitive, and shrinks from the slightest touch ; accidental circumstances which, in the ordinary state, would not be noticed, are magnified into causes of annoyance or alarm—changes of temperature, a sudden noise, shock the system and jar the nerves, in a manner quite unusual to the individual ; and if the accident is of considerable

severity, this sympathetic excitability will be raised to an intense and dangerous pitch. So a fall on the ice, or a narrow escape from being knocked down by an omnibus, will arouse every sense into unusual and unnatural activity; we concentrate our energy into an exaggerated carefulness of tread on the slippery pavement, and employ eye and ear, and the quick movement of the head, in nervous anxiety, as we cross the street.

Now this same increased susceptibility is present at the various marked epochs of growth; it seems to be the condition of any unusual or special action of the body; an impulse is given, an important work is to be done, and the vitality of every fibre is raised to the highest point to give its aid. There is only this difference between the excited sensibility caused by accident which we have noticed, and that which accompanies growth—it is that the former accompanies a morbid condition; while the *latter* is the attendant of normal, necessary action, requires no remedial means, and if guarded by a strict observance of the laws of health, will aid the progressive growth.

From these two facts in the history of youth—1st, the marked and increasingly important epochs, into which we find the life divided; 2d, the heightened susceptibility of those periods of growth—we derive fresh confirmation of that law of *order in movement*, which has placed as the first necessary step in life, the devel-

opment of the material frame. We also see clearly the duty which we have constantly to perform to the organic life.

We have spoken of the freedom of movement, the temperature, the cleanliness necessary as conditions for the life of the infant, and of the essential importance of providing the best food for the lungs and the stomach. We now see that throughout the whole period of youth, the necessity for these conditions increases, with the increasing importance of the changes which take place in the system. When the period of infant life ceases, and the child is able to run about, to eat a variety of food, and to be in some degree independent, the maternal care instead of diminishing, should take a wider range—it should increase with the growing necessities. That would indeed be a narrow and unworthy view of maternal duty, which should limit its tender solicitude to the direct dependency of infancy—with every advancing step, the duties of the mother become nobler, and more important in the scale of existence. This will be felt with greater force, when I speak of the life of relation, which increases with the growth of the child. I urge now the increasing importance of the mother's care, because I wish it to be felt as applying also to the organic life *throughout youth*. Our two great principles of duty to this life must never, for a moment, be forgotten. Freedom to work, and materials

to work with, must always be provided, with at least as anxious a care for the growing girl of fifteen, with her expanding frame and enlarging desires, as for the little sleeper in the mother's arms. It would be quite as cruel, to compress the chest, to weigh down the form, to impede the movements at thirteen years of age, as to swathe the infant of thirteen days—quite as wicked to slowly poison the body with close, vitiated air and unwholesome food, when the mind is rapidly unfolding and the individual has wide external relations to sustain, as to injure by the same means the unfolded life of the infant. Through the whole period of youth the maternal care must enfold the organic life of the advancing being, and provide for its necessities, with the watchfulness of intelligent parental love.

There is another principle which should be distinctly understood in relation to this stage of life—it is the vast difference that exists between the period of active growth, and that of complete attainment—between the physical condition of youth, and manhood. The excitements, the privations, the subjugation of the body, that may be borne without injury in healthy adult life, would be keenly felt, and highly hurtful in youthful life. Consider for one moment the difference in these two states. In *the first period*, there is a regular succession of marked and most important physical changes, affecting sympathetically every portion of the organization. In

the second period of life there is *no physical change*--the body strong and useful, quietly performs its part, as a perfect subordinate instrument. *In the first*, the mind, though growing, by no means keeps pace with the body, but remains unformed when the material organization has attained its perfection. But *during adult life*, the mind is supreme, it is strong and active, and its action is the object of life--here then we see a total difference of method and aim--there is an harmonic connection between them, as the first is but a preparation for the latter--but in actual condition there is an immense difference, the same fact may have a totally different significance, during the two ages, and the rules for the material well-being, must be different. I wish to call your attention to the bearing which this difference of condition has upon the organic life, because the life of youth being regulated by adult experience, the danger exists, that the habits of daily life which may be innocent to the adult, may *therefore* be considered as suitable to youth. The stomach and digestive apparatus, for example, occupy a different relative position to the economy in youth, and manhood. I have noticed these peculiarities in my remarks on infancy; they continue to exist, less in degree, but still strongly marked, through the whole period of growth. Food occupies a place of more prominent importance; the total amount required, is comparatively greater, but the power of digesting at one

time is less ; delicacy of structure, and general susceptibility, are strongly marked in youth ; consequently the quality of food, the amount taken, and the length of abstinence, must differ in the two periods of life ; and the violation of true principles, will be far more injurious to the young than to those advanced in life. Over-eating is one of the most injurious as well as most common habits of childhood ; the appetite becoming ravenous by too long abstinence, induces the child to eat enormously—the total amount taken in the twenty-four hours may not be too great—the mischief lies in giving the stomach too much at once—or food of an improper quality—heavy pastry or bread, half-cooked vegetables, tough meat, hot cakes swimming in butter and molasses, coffee, spices, pickles, and the heterogeneous mixture of articles which so often constitutes our present diet. Simple nourishing food, well prepared, in abundant quantity, but not too much at once, is the necessary provision for the young, rapidly growing body. The same difference should be observed in all the habits of youthful and adult life ; and the tendency which exists in the young to imitate the old, should never blind us to the injurious consequences which would result from such imitation. The freshness of the young intellect, its quick perceptions, and perpetual activity, may lead us to imagine the existence of the corresponding strength, which would accompany those qualities in manhood. A child may

learn to keep late hours and turn night into day ; to live on coffee and wine, and spicy food ; the boy may smoke a cigar, and the little girl may imitate the unnatural tournure, and adult airs represented in our fashion-plates—they may learn with wonderful accuracy the habits and follies of an older age ; but not *with impunity*, such untruthfulness to nature destroys her beautiful work ; this bright young life is sparkling but not deep, and we dry up its source when we subject it to artificial habits, and to the rules of a later period. The excitability of the child is surprising ; the praise of a superior, will stimulate to its own destruction, as with the Spartan boy, who suffered the concealed animal to destroy his life, rather than be degraded in the eyes of his companions and teachers, as an inexperienced thief. This extreme susceptibility must be guarded by us, as an important means of good to the child ; as a condition by which it may draw health and life from every favorable circumstance. Let it be surrounded, as of the first importance, by those agents which will conduce to its physical well-being ; let us understand the importance of our position as the intelligent guardians of youth, and provide for the peculiarities of its bodily wants. Let every organ have a full supply of the healthy stimulus peculiar to it, and full freedom to perform thoroughly its function. And let us avoid most carefully, forcing upon the youthful growing organization, the customs, the

thoughts, the restraints and indulgencies of our own advanced condition.

Here I leave this branch of our subject. I have pointed out the peculiarities of the organic life, particularly during the period of youth. I have shown how we are called upon to aid this life, and what are the limits of our power in regard to it. We have seen that this attention on our part, is essential to youthful well-being, as the organic life is the foundation of all other life; and finally I have dwelt upon the different habits and objects that should influence youthful and adult life. In the next lecture I shall call your attention to a most important subject, viz., the Related Life of the Body, and our Duties to that Life.

RELATED LIFE.

WE have now to consider the second branch of material life, viz., the related life of the individual. In our last lecture we spoke of the organic existence of the body, when, like a tree in winter, the proper life is undeveloped, concealed within, and it stands bare, and isolated, useless to us ; now we would regard it as the same tree putting forth its leaves, fruit, flowers, beautiful to the eye, a shelter from the sun, purifying the air, and making sweet music in the passing breeze ; such is the related life of the body, the instrument of wonderful and beautiful uses.

The object of this related life, is to furnish the soul of man with a fitting instrument for its expression, consequently its range of action must be wide and varied ; it must serve as a medium between the ever expanding soul and the infinite universe. The different portions of our bodily frames, which are intended for this high use, are, 1st, the muscular system ; 2d, the organs of sense ; 3d, the brain. By means of these, our whole external

life is carried on. The soul takes possession of all these organs, and with their help, conquers the material world, penetrates the secrets of Nature, the hidden mysteries of earth and sky ; by their help, all the holy relations of the family are formed, and man learns to know and love his fellow-man ; through them we explore the wonderful kingdoms of science and art ; there is no limit to the treasures of love and wisdom, which they open to us, for it is equally by means of these divine gifts that we raise the first humble cabin in the wilderness, or worship with a whole nation in the lofty temples of the Most High. From the noble use, then, of these faculties of our nature, we should be led to regard them with peculiar interest ; but there is one quality which they hold in common, which classes them together, notwithstanding their varied structure and uses, which will add a hundred-fold interest to their study, and make this study an imperative duty ; it is the power of education which these faculties possess, a power of indefinite development under our intelligent action, by means of which we may exercise an almost creative power over the child, and impart to it a degree of goodness, beauty, and intelligence, which should make us tremble at the responsibility placed in our hands.

It is my purpose, then, in this lecture, to dwell in some detail on those organs of the related life of the body, which are particularly connected with the health, the physical well-being of the individual. I wish to

show you the position which they occupy in the economy; and what our duty is in relation to their development. I shall commence with that important structure of our body, whose object seems synonymous with life, and whose direct action marks the opening and the closing of our career; we will first consider the muscular system.

The great bulk of the human body is composed of muscle. If you look at the bare skeleton, composed chiefly of hollow bones, you will see how slender an outline of the human form it presents; the clothing of those bones, the closing of the cavities, the formation of the special human outline, is the work of the muscles; the weight of the individual depends chiefly on them. If we could lay aside the protecting layer of skin and fat which envelopes the body, it would make very little difference in its size, we should then see the muscular body, red and well defined, and we should realize more fully how very large a proportion of the body is formed by muscle. It is as you all know the flesh of animals, the lean of meat. Its structure is regular and beautiful; we can form no idea of this structure from the meat which we cut at table, because we cut it *across the grain*. If we cut an orange in two transversely, that is through the rounded circumference, we can form little idea of its structure; but if we peel it, and split it longitudinally, we then see at a glance the number of parts

which compose it, the semi-transparent membrane which incloses each division, the way in which they are united ; then if we open one of these divisions we find inside the seed, and the juicy pulp, and even the pulp now, will present quite a different aspect from the transverse section, for we see that it is arranged in little bundles or fibres lying side by side, and that each bundle is itself incased in such a delicate transparent membrane, that it tears and lets out the juice, with every attempt to separate it. Thus by carefully dissecting the orange, we get a totally different idea of its structure, than by simply cutting it through. Now if in the same way, we could peel the human being of his skin rind, we should find the muscles below as well marked as the sections of the orange ; each muscle carefully enveloped in its sheath of membrane, and lying across or by the side of other muscles similarly enveloped. There is an immense number of them spread over the body, several hundreds, and they are infinitely varied in shape and size ; some so large as to cover the trunk, others almost invisible ; they are thick and short, or long and slender, or spread out in a sheet, or branching like pine leaves, according to the object to be attained, and the part where it must be attained. These muscles are mostly in pairs ; thus the layers which cover the right arm, correspond to those which cover the left ; so with those on the legs, and those which cover the face, neck, and trunk ; they are

symmetrical throughout the body, most beautifully so, the shape of many of them is exceedingly graceful, and the "line of beauty" is illustrated in no part of the body so perfectly as in the muscles. Now this whole assemblage of muscles, so varied as we have seen, and spreading all over the body, both inside and out, we class together under the term, *muscular system*. Its grand object is movement. Let us see how this is obtained. When we take hold of a bell-rope and ring the bell, the essentials to this action are, the rope, with its two attachments, one to your hand, the other to the head of the clapper, then the power of making one of these two attachments a fixed point towards which the other shall be drawn, thus pulling down the head of the clapper and striking the bell with the end. Now to move a human leg, the same points are necessary, the rope or long muscle, with its two attachments, one end fastened to the trunk as a fixed point, the other attached to the leg. In order to move the leg, the distance between the two attachments must be diminished, the leg attachment must approach the fixed point at the trunk; in ringing the bell, the distance was shortened by drawing down the arm and rope; but our body would present rather an alarming spectacle, if the muscles should start out in every direction, to pull the limbs from point to point; the shortening of the distance between the two attachments is performed in another way, viz., by the shorten-

ing of the muscle itself, by that contractile power which is peculiar to it. If we open the sheath of a muscle, we shall find it composed of bundles of delicate fibres ranged side by side; now each little fibre has the power of shrinking together, the whole muscle shrinks together, swells somewhat in bulk, but shortens in length, and so moves the limb or part to which it is attached. It is not, however, one single muscle which moves a limb; not only are there many other muscles which combine in various degrees to form the different movements of a part, but the various fibres of the same muscle, can also move in various degrees to modify movement; thus the variety of movements that can be produced by the combinations of so large a number of muscles is immense, and the shades of movement may be of the most delicate nature, and infinitely varied. The attachments of the muscles are of a different character from the body of the muscle, particularly where great compactness of movement is requisite, the ends of the muscle then condense into strong white cords which we name tendons; this structure and the method of movement may easily be examined in the wrist of each individual, if there is not much fat below the skin. If we feel the inside of such a wrist, we can slide the skin backwards and forwards over the thick white cords, which lie below and are hard to the touch; these are the tendons of the muscles, and if we trace one of them up the arm,

we shall feel it grow larger and softer, till it swells out into a mass of flesh, near the elbow joint. If the skin of the wrist is delicate, we can even see the dark fleshy part of another layer of muscles lying below these white cords. These tendons are attached to different parts of the hand and arm, and we can feel very distinctly their movements changing, according to the part we wish to move. If we lay the thumb of the other hand over these tendons, and move the wrist slowly backwards and forwards, and then keeping the hand steady, move simply the fingers, we shall distinguish the action of totally different muscles ; then by steadying the hand and forearm, moving them upon the arm, we find the muscles at the wrist do not come into play at all, the action is produced by muscles placed on other parts of the arm. There is an endless variety of objects to be accomplished by the movements of the human body—force, agility, expression, the various thoughts of the mind have to shape themselves in action. We find in the arrangements of the muscular system, a corresponding variety of method, to accomplish these necessities. Thus to attain what would seem the most difficult triumph of mind over matter, viz., the expression in material substance of the feelings of the heart, of every delicate, noble, or violent sentiment, we find a most beautiful arrangement of the muscles of the face ; we have no strong tendons, as in the wrist, where great force has to be exerted in grasping, we find very few attachments to the

bones below, but the face is covered by a layer of living contractile muscles, with their fibres arranged in every possible direction, circular, direct, oblique, running into one another, capable of the utmost mobility, and instantaneous response to the slightest change of feeling; our faces were never intended as masks to our souls, but every provision is present, to render them the faithful image of every changing sentiment.

Now, constituting, as the muscles do, the great bulk of the body, they must necessarily require an immense supply of blood, and consequently the largest vessels branch off in every direction to supply the necessary nourishment; and these vessels do not branch off at right angles, as they do to many of the organs of the body, but the fullest and freest communication of blood is secured, by the acute angle which is generally observed in the branching of the muscular blood-vessels. Besides the blood which is called off in such large quantities to the supply of the muscles, there is also an immense supply of nervous influence, to which I must call particular attention, for it has a most important practical bearing. We do not know what the peculiar fluid or essence conveyed by the nerves to all parts of the body may be, for we cannot demonstrate it as we do the blood, by sight or touch; but it is essential to life, penetrates every part of the body, and is more directly under the control of the mind than any other portion of our frame.

This nervous influence has its origin in the brain, the spinal marrow, or the ganglia (which latter are little white masses found in different parts of the body), and is conveyed by white cords into every fibre of the body, producing feeling, movement, in fact life. Now every one knows, that the brain is that mass of gray and white matter contained within the skull, and is the special instrument of the mind, while the spinal marrow is a thick cord, of similar substance, running through the bony tube of the spine. There is no separation between the brain and spinal-marrow ; we feel the head moving upon the spine, but there is no division between them at the nape of the neck ; they are encased by similar membranes, bathed by similar fluid, and formed of similar substance ; the connection between the two must necessarily, then, be very intimate. The whole substance of the spinal cord is specially devoted to supply the muscular system with nervous influence ; large white nerve-cords escape from the spinal marrow along the whole extent of the trunk, and branch off, in finer and finer threads, to every muscle in the body ; the largest nerves in the whole body being three-quarters of an inch wide, branch off in this way in the lower part of the trunk, and extend to the many powerful muscles situated at this part of the body, and to the lower extremities. Moreover, that the muscular system may not be isolated from the rest of the body, but that its influence for good or ill may be felt in

every organ, branches of these nerves are sent off to each one, although they are specially supplied from another source ; but thus the unity is preserved, and the muscles, the organs, and the brain, are intimately linked together. This is not all—a large mass of the brain, the cerebellum, viz., one-seventh of its substance, is also specially devoted to uniting and harmonizing of movements, and thus to the service of the muscular system ; thus we see how very large, important, and widely connected, is the supply of nervous influence provided for this portion of our economy.

As every object in nature has its use, and the degree of importance belonging to that use is indicated by the nature of its structure, we see at a glance how highly important to our well-being the use of the muscular system must be, which forms the largest portion of our bodies, which is arranged in the most beautiful and varied way, which is so richly nourished by heart and brain, and which, moreover, is endowed with a special power, which we find in no other part of the body, viz., the power of vital contractility. The direct object of this vast preparation is *movement*. Each muscle, in order to enjoy its proper life, in order to use the blood and nervous fluid supplied to it, and grow, must *move*, must *contract*, and *thus employ its powers*. We see, then, the necessity of exercise—the prominent place which it must occupy amongst our faculties during the growth of the body.

The bare enunciation of this principle, viz., the necessity of exercise, arising from the great law of use, is sufficient to indicate the place which exercise should occupy in our systems of education; but it will strengthen a true view of this subject, if we notice some of the minor uses of exercise, and observe the evils which will arise in various ways to the body, from the neglect to employ the muscular system, from inaction of the body.

First, then, it is intended by nature that a large supply of blood shall go to the muscular system, and I have shown the peculiar provision that is made for this purpose; but if the muscles are in a state of inaction, they will not use this blood; only a small portion of it will be employed for the slow and languid growth of inactive muscles; there will be no demand for blood in that direction, and it will consequently be drawn to other parts in undue quantity; the internal organs will receive more than they need; for these organs, being always active, will attract the blood which the muscles should have used. Now, every organ is intended to receive a certain quantity of fresh arterial blood, which it uses for its own special purposes, and then sends off the refuse venous blood by the veins, to be purified. In every healthy organ there are these three elements well balanced, viz., the arteries bringing blood, the active parts of the organ using it, and the veins carrying off the remainder; but if this healthy balance is destroyed, if the

arteries bring too much, or the organ fails to use the supply, or the veins are unable to carry off the useless portion, then the part becomes overloaded or congested; and if that state continue, mischief will follow. Now, it is this state of congestion which will arise in the internal organs, when the muscular system fails to use that portion of blood which is intended for it. The organs may all become congested, or if any one is weaker than the rest, if there is any tendency to disease existing, it is that part which will especially suffer, and disease will inevitably be developed.

2d. Muscular exercise aids the circulation of the blood, and particularly the return of the venous blood.

You know that each beat of the heart gives an impulse to the arterial blood, and sends it on its journey through the body, while the elastic arteries, contracting upon the blood when the heart's beat is over, continue that impulse, and urge the blood on into the finest channels which it has to reach; but there is no beating heart to send back the venous blood, which has to be brought from every part of the body; there are no elastic vessels to press it on, for the veins are not formed of the same substance as the arteries. A variety of other circumstances are necessary, to aid the returning blood in its journey to the heart, and amongst these, a very important one is the contraction of the muscular system, which, extending as we have seen all over the body, both

inside and out, will powerfully aid in exciting the activity of the veins, and pressing on the returning blood; while inactivity of the muscular system is sure to produce stagnation of the blood, or venous congestion, and aid the morbid condition to which we have alluded above.

3d. Animal heat and electricity are produced by muscular contraction. I do not allude to the heat produced by nutrition, for you all probably know that the change of blood into flesh, which is constantly occurring in the nutrition of every part of our body, produces heat by that chemical change, just as heat is produced when you bring water into contact with lime. But besides this heat of nutrition, there is a special development of heat, with currents of electricity, that can be definitely measured during muscular exercise. This has been ascertained in the powerful contraction of the large muscles of a man's arm, which contraction produces an electric current, which powerfully affects a magnetic needle, suspended near the arm; and though we have not yet been able to measure the amount of heat and electricity produced in the human body by the contraction of all its muscles, we know that it must be very great, and this subject becomes constantly more interesting and important, from the curious phenomena which science is every day tracing to human electricity.

4th. I have spoken of the important influence of ex-

ercise on the circulation of the blood—I wish now to call your attention to its marked effect on the nervous system, and I might explain the evils which arise from neglected exercise, by the term nervous congestion, if we were warranted in regarding the nervous influence as a fluid circulating in the same way as the blood ; but though there are strong analogies between the two systems, I should not be justified in using the term nervous congestion, although it would explain from analogy the evil which I wish to point out. Let me therefore refer you again to the anatomical arrangement of the nervous system, that you may clearly understand this very important point. There is a certain amount of nerve force in every individual which is essential to life ; this force is generated in the three centres, the brain, the spinal cord, the ganglia, just as the blood is generated by the stomach and its connected apparatus, and the lungs ; the brain is the nervous centre for the mind, the spinal marrow is the centre for the muscles, and the ganglia form the nervous centre for the organs. Now each centre has thus its appropriate objects to which its nervous force must be distributed, but if the parts which should be supplied are not called into exercise, there will be an excess of nervous force in other parts, the healthy balance will be lost, and a diseased nervous system will be the consequence. We have seen the very large portion of the nervous system which is appropriated to the

muscles—the great number of nerves which are distributed all over the body, from the whole length of the spinal cord—these nerves are nerves of motion, and nerves of sensation; if the muscles remain inactive the motor nerves of course remain so too; here then the first balance is destroyed, the sensitive life attains an undue power over the active motor life, the body becomes the prey of morbid sensations, of an unnatural vivacity of impressions, which mark the irritability of this unbalanced exercise of the sensitive nerves. Again, the inactivity of the muscular system not calling into exercise the whole nervous force of the spinal marrow, the mind which is always active will call the brain into undue activity; this evil will be increased by the application of stimulants to the mind, which will still further draw off the nervous influence to this centre and produce a premature mental development—nor is this all. The ganglia, the sympathetic nervous system, under whose influence the organs of the body grow and live, will share the undue activity imparted to the other centres by the inaction of the muscular system. The generative organs, which are governed by the ganglia, and intimately connected with the mind, will suffer from the lost balance of the nervous system; they should be the last and slowest growth of the body—but they will thus suffer, equally with the mind, a premature development, and the weakness which is the inevitable consequence. Here then

are three great evils arising from the loss of nervous balance, produced by the inactivity of the muscular system—the undue exaltation of the sensitive life of the individual, and the premature development of the mind, and of the generative system.

5th. The tone of the whole body is lost by inaction. By the expression, *tone* of any part, we mean that natural healthy vigor, which is shown in the muscles by their perfect contraction ; in the organs, by their steady normal performance of their functions ; it can easily be understood, by contrasting the firm flesh of a healthy child, with the soft, flabby muscles of one weakened by disease. Now this tone is lost in *every part* of the body, by continued inaction of the muscular system, for there exists not only nervous connection between the muscles and the organs, but direct sympathy of structure—there is scarcely any organ of the body where muscular fibre is not found. The heart is a muscle of immense power ; the stomach and whole length of the intestines possess a strong layer of muscular fibre ; it enters into the structure of the mass of blood-vessels. The uterus is an organ of tremendous muscular force, and muscular fibre enters into every part of the generative system. Now though there are differences in the structure of this organic muscular fibre, and the fibre of voluntary life, which we are specially considering, yet it possesses every where the same essential character ; it is *contractile*

muscular fibre, and consequently the organs throughout the body are connected by sympathy of texture, with the wide-spread muscular system ; and if the tone of the muscles is destroyed, if they are weak, relaxed, unfit for duty—the tone of all the organs will be destroyed in corresponding degree. Thus from the neglect of exercise during youth, we have this formidable result to the body, a weakness of the whole muscular system. Now the time would fail me to trace out all the bodily evils, all the diseases that inevitably spring from this condition of weakness. The crooked spines and distorted pelves, with other vices of growth, may be directly traced to it, and its injurious influence on the functions of adult life, I shall soon have occasion to dwell upon.

Let me recapitulate the special evils which will thus arise to the whole material frame when the muscular system is not called into exercise, and developed as its structure and important functions demand. I have called your attention, 1st. To the congestion of the various organs, and consequent impairment of their functions. 2d. To the stagnation of the venous circulation, from the absence of muscular stimulus. 3d. To the deficiency of heat and electricity, which are produced by muscular contraction. 4th. To the irritability and undue excitement of the nervous system, which must arise when the motor nerves are not called into action. 5th. To the loss of tone in the whole body, from the weakness of the

muscular system. Now, all these evils, more and more formidable as they will seem, the more you reflect upon them in detail, are still minor evils, because they do not refer to the *great object* of the muscular system, which is to furnish a varied and powerful instrument for the expression of the soul.

We need muscles that are strong and prompt to do our will, that can run and walk in doors and out of doors, and convey us from place to place, as duty or pleasure calls us, not only without fatigue, but with the feeling of cheerful energy; we need strong arms that can cradle a healthy child, and toss it erowing in the air, and backs that will not break under the burden of household cares, a frame that is not exhausted and weakened by the round of daily duties. We want faces that can smile and light up with every noble sentiment, and not be rigidly set to vacaney, or wrinkled by care, faees that will greet the stranger with a welcome that he can feel; that will *show* to the loved ones the rich affections of the heart; that can lighten with indignation, or glow with honest approbation: we need faces that know how to move and express true feelings, instead of remaining like an icy barrier, through which the warm feelings of the heart strive in vain to break. We need developed muscles that shall make the human body really a divine image, a perfect form rendering all dress graceful, and not requiring to be patched and filled up and weighed down with clumsy

contrivances for hiding its deformities. Bodies that can move in dignity, in grace, in airy lightness, or conscious strength, bodies erect and firm, energetic and active—bodies that are truly sovereign in their presence, the expressions of a sovereign nature. Such are the bodies that we need, prompt to do and to feel, truly our own. And such nature intends us to have. In order to give us so perfect and beautiful an instrument, the muscular frame was constructed, so rich in every way, so obedient to the mind. Exercise, then, the means by which the muscular system may be developed, assumes its true position, as of primary importance during the period of youth. It is the grand necessity which every thing else should aid. We have seen how the organic involuntary life needs our aid but indirectly, but this education of exercise is immediately under our control, and demands imperatively our direction. Let us consider what we have to do in this important matter.

The young infant is almost withdrawn from our control. Nature says to us, "stand by, and watch my work!" This delicate life will admit of no trifling, no neglect, no experiment; but watch the infant how it kicks, and cries, and works, not arms and legs alone, but every part of its body in pain or pleasure. We sit and smile, or silently weep; but the baby puts every muscle in motion; if it is pained or angry, it will scream with its whole life, and contract every little fibre, and strain

and wriggle in infantile rage, to the intense alarm of its mother. We may leave it to nature for exercise ; it will be well attended to, and carried through an efficient course, reaching every muscle of the body, that we should find difficult to imitate by art. Watch the little child too, that has learned to walk and prattle ; the perfectly free child, that has not been forced to conform to older habits, whose organic life has grown under the laws we referred to in a former lecture. Do we need a more perfect illustration of perpetual motion, during its waking hours ? Give it free room and a few playthings, if they are only blocks of wood, and it will go through a series of positions, stooping, twisting, doubling, turning over, that are incalculable and unapproachable. And you cannot quiet such a child ; take away the playthings and every legitimate source of amusement, and your inkstand will be upset, your books ingeniously torn, the table-cloth dragged off, and the contents of the work-basket sent rolling ; and if it be absolutely restrained from such questionable devices, it will make it up by fretting and fidgeting till the older head fairly aches. It is a most admirable arrangement, this incessant activity of the child, the inexorable law by which it lives, and which will turn the whole household upside down, sooner than sin against its own nature. For it lives by movement ; fresh air and exercise are the mainsprings of its healthy physical life. Thus in the *earliest* years of life, nature's

indications are very plain ; and in exercise, as in the organic functions, the most perfect freedom, under favorable conditions, should be enjoyed by the child, that its own instincts may guide it. Our interference at this early age would be injurious, for our intelligence has not yet supplied us with means by which we can educate the little child better than nature will, if we only surround it with the necessary opportunities ; and we cannot, for one moment, doubt the superior physical condition of the young child who can play for the whole day in the fresh air of woods and fields, to one educated in the most skillfully conducted infant school that we have ever seen. At this age, when the instincts of nature are fresh in the child, we have nothing to do, but zealously to aid those instincts—it is very doubtful whether our duty to the young child will ever extend beyond this.

But the child grows on. With the period of second dentition, the mind has assumed a different character. The irrational pursuits of early childhood no longer attract—it is impossible to absorb the attention for hours with the position of a few sticks and pebbles, or the manufacture of dirt pies. Exercise must now have a meaning, an object ; it must be rational exercise in order to attract, and a book will be far more inviting than a game of play, if there is no mind in the game. The instincts of the body are no longer imperative as with the infant ; they are not the same trustworthy guides.

The child has now been for a long time under the influence of social habits moulded to the wants of adult life, and nature no longer speaks through it, in the same clear voice; the intelligent will is awaking, and the demands of the body are henceforth made in an humbler tone. But does exercise really become less important to the well-being of the child at this age? Most emphatically not! Every part of the body is in active growth, and exercise is essential to the perfect nutrition of active growth. The bones have not attained their due solidity, they will yield to the pressure of long continued or constrained position; the textures are soft and incomplete; the muscular system is growing, not *grown*, and demands imperatively its *condition* of growth—exercise. The nervous system is so extremely susceptible, that muscular exercise is absolutely needed, to balance its activity, and save it from morbid irritability; and the most important physical changes are preparing in the system, the crowning work of the body, whose effects are of vital consequence to the well-being of adult life—the age of puberty, viz.—which demands the most favorable material conditions, that it may be accomplished in that slow and complete manner, which can only be the result of perfect muscular development.

Most evidently then the freest and fullest exercise is required, until the period of puberty is fully established and its functions consolidated. It is only then when the

bodily growth is healthily completed, that the physical discipline may relax, that our object may change, or rather receive its completion in the full development of the mind. Until that period of perfected physical growth is reached, all neglect is dangerous ; the evils to which I have alluded, will inevitably arise, and imperfection or disease through the whole of life will be the result.

Our *special* duties to the muscular system commence, when the earliest childhood is past ; it is then that our intelligence is absolutely needed, to make physical exercise intellectual, and thus suit it to the wants of the growing child, and it is at this period that we may be said for the first time, truly, to *educate* the body. We have to provide the object, as well as the method of obtaining it. This object is the exercise of the mind through the body ; it is the expression of ideas by means of the muscles : spiritualized physical exercise is the demand of this second stage of youthful life.

The method by which this object may be attained is, 1st, the subjection of the muscular system to the supremacy of the will, by obtaining a perfect control over all the muscles of our body, and a knowledge of the combinations of which they are capable ; 2d, the application of the power so obtained to the overcoming passive resistances, as in climbing, running, throwing, &c. ; to the overcoming active resistances, as in fencing,

wrestling, &c. ; to the expression of sentiment, as in pantomime and national dances ; and to special adaptations of the muscles, as to the eye in archery, to the ear in singing, to the touch in swimming. But it is not my purpose here to enlarge upon this subject. In this lecture on the voluntary or related life of the body, I can only give you a general idea of the importance of this life, and the principles which should govern it, without entering into the details of education. I have shown you the nature of the muscular system, the paramount importance of its development, and the rank which exercise should hold in youthful education : I must now turn to the second branch of the related life, viz., *the senses*.

My remarks on the senses will be few, for two reasons ; 1st, they have not the same powerful influence on the *material health*, that we have seen belonging to the muscular system ; they are more exclusively related to the mind, and though of great importance in education, their consideration belongs only indirectly to the branch of physical education which is properly our subject. And the 2d reason is, that our means of educating the senses are at present very limited ; it is a subject not yet understood ; we do not comprehend their full scope, and any attempt to lay down a system of training, would be exceedingly imperfect. I shall content myself therefore with giving a few general principles on this subject, which will serve as guides in the true direction, and ena-

ble us to understand the position which the senses occupy in the human economy, and what our duty to them requires.

1st. We find the same capacity for improvement which marks so strongly the muscular system, shown most wonderfully in the senses. The eye of the experienced sailor will detect the distant shore, with its lighthouse and scattered cottages, when the landsman perceives nothing but a faint mist—and the ship which seems like a dark speck in the horizon, will reveal to him its peculiar structure, and the country to which it belongs. The sagacity of the Indian eye which detects the trail of the enemy on the hard rock, or amongst the bushes of the forest, seems to us incredible. And how remarkable is the touch of the blind, as the finger passes rapidly from line to line, gathering in the varied forms of the letters with unerring certainty, and with an instantaneous recognition, that renders it the transparent medium of thought. By the touch of the hand they distinguish instantly the stranger from the friend; and even the varying pressure of the atmosphere will guide them in directing their steps, and avoiding the contact of external objects.

The illustrations of this power of education in the senses, are familiar to every one's experience, and it is this power which gives to them, in relation to our present inquiry, their special interest, for it shows us that they

are placed directly under our control ; that it rests with us to give them their due exercise, and to develop the true life of which they are capable. This acute action of the senses becomes another powerful instrument, through which the mind can express itself : it suggests to us the 2d point of interest in relation to this subject, viz., the intimate connection of the senses with the mind.

The senses are direct avenues to the soul ; they are capable of awakening intense emotion, religious enthusiasm, every sublime or tender sentiment. The traveller, as he gazes from the mountain top on the wide extent of forest and hill stretched at his feet, with the blue expanse above and the light clouds sweeping silently over, with no sign of human life, no sound to break the solitude, stands awe-struck with the overpowering immensity and spirit of majestic beauty that rests upon that scene ; the eye speaks to the soul of eternity, of the Grand Spirit of the universe, with a power that thrills the heart. And as the traveller winds through some sheltered valley, and marks the thriving village, with its busy inhabitants, what a different tide of emotion sets in ! what thoughts of home, what warm human interests are awakened ! How our hearts bound to the spirited strains of martial music ! how we thrill to the shout of the multitude ! and how many a David has charmed away evil spirits by the melody of beautiful sounds ! Neither is it

a passing emotion of little moment in our life that we receive from the senses, for they are our perpetual body-guards, surrounding us unceasingly, and these constantly repeated impressions become powerful agents in our life; they refine or brutify our souls, they ennoble or degrade them, according to the beautiful or mean objects which surround us. A dirty slovenly dress will exert an evil moral influence upon the child; it will aid in destroying its self-respect; it will incline it to habits which correspond with such a garment. The beautiful scenes through which a child wanders, playing by the sea-shore, or on the mountain side, will always be remembered; the treasures of shell and sea-weed, brought from wonderful ocean caverns, the soft green moss, where the fairies have danced, and the flowers that have sprung up under their footsteps, will leave a trace of beauty, of mystery, and strange happiness wherever its later life may be cast. The senses mingle powerfully in all the influences of childhood. It is not merely the loving care of parents, the purity and truthfulness of the family relations that make home so precious a recollection; there are visions of winter evenings, with the curtains drawn, the fire blazing, and gay voices or wonderful picture books; there are summer rambles in the cool evening, when the delicious night-breeze fanned the cheek, and we gazed into the heavens to search out the bright stars.

It is then most important in educating children to

guard the senses from evil influences, to furnish them with pure and beautiful objects. Each separate sense should preserve its acuteness of faculty: the eye should not be injured by resting on a vulgar confusion of colors, on clumsy, ill-proportioned forms; the ear should not be falsified by discordant sounds and harsh unloving voices; the nose should not be a receptacle for impure odors; each sense should be preserved in its purity, and the objects supplied to them should be filled with moral suggestion and true sentiment; the house, the dress, the food may preach to the child through its senses, and aid its growth in quite another way from the protection afforded, or the good blood which feeds its organs.

Doubtless the senses are capable of a development of which we have at present little idea. The inconceivable acuteness which they occasionally acquire in individual instances, prove to us the *crude state* in which they remain in the majority of mankind. Except for the eye and ear, in painting and music, science has done nothing for the senses; but it is evident, from these singular instances of power, that so vast a capacity for growth will not always be left unimproved.

But this point I must leave for future years; all that I have to say on the practical training of the senses will fall under the subject of exercise. It is sufficient here to have pointed out the powerful influence which the senses exercise on the mind.

The third portion of our material frame which connects us with external objects is the brain, the special instrument through which the intelligence and the will manifest themselves. I will call your attention to two anatomical facts in relation to the brain: the *first* is its soft condition throughout the period of childhood, and the greater firmness which it acquires through adult life. The *second* is the longer period of growth allowed to the brain; it does not cease to grow with the rest of the body at a definite period, but may continue to enlarge as well as consolidate during adult life. Now, this softness and high vascularity of the brain during youth indicate a period of growth, a period of comparative weakness and excitability, which is not suited to the highest functions of the mind, to reflection and calculation, to judgment, to concentrated attention. Milk for babes, strong meat for men, is the wise rule established for the training of the mind. We must not force the youthful intellect by burdening it, during the limited period of bodily growth, with tasks which are suited to the fully formed brain, nor should we force it to work for a length of time, which interferes with the growth of the rest of the body, and which is quite unsuited to its powers. The lengthened period of growth allowed to the brain confirms this view. We are not obliged to hurry the development of our children; there is a regular order of growth established, and when the body has attained its full strength, the

brain will continue to sustain the increasing force of the mental capacity.

Now, while I lay down the distinct rule, that in youth the mind should not be trained to the same extent as the body, it will be at the same time clearly understood that, according to the law of compound movement, there is no period of life when the mind is left idle, and all through childhood the intellectual faculties are rapidly unfolding. But this unfolding is not the result of direct exclusive training, as in later life. The moral nature is not formed by strict precept, by direct instruction ; the child will become truthful, just, affectionate, by seeing those virtues constantly practised, by feeling their beauty and goodness, and thus learning to love them ; only in this way will it *grow in goodness*, and later in life, the reasonableness of virtue, its universal necessity, its *laws* will be understood. So in the intellectual life, the direct and special training of the intellect should be extremely limited. The mind should grow in child-like fashion by means of the body, through the senses, through movement, through the influences which surround it. You cannot teach a child to speak grammatically when it is surrounded by those who violate all propriety of speech ; the child learns best, not what it is taught, but what is caught in every-day life amongst companions, in its walks through the streets ; and a ramble through the woods, with a wise friend, will give it more real know-

ledge, will teach the eye to observe, the head to think, and the heart to feel, more than a week spent in poring over books in direct intellectual exercises.

This subject will be more fully understood when I examine our present method of education and habits of life, and judge them by the principles already laid down. This subject will occupy us at our next meeting, and I need not urge the vital importance of this examination ; it is the great practical point towards which we have been tending, and on which the highest welfare of our race depends. It is a profoundly interesting question, whether the principles of truth, which we have been collecting, are carried out in our lives, or whether we are setting at defiance every spiritual and material law.

CRITICISM.

It is our duty to-day to examine our *manner of life*, with particular reference to its action on our *physical* well-being. We have seen the standard of excellence which Providence intends us to reach; we have considered the laws of life by which this excellence may be attained; and it now remains for us to ascertain how far our customs, which are the actions of our intelligent will, conform to the plan of Providence, and how far we live in direct opposition to the Divine laws. Let us review these great principles of action, that we may judge the customs of society in the light of their requirements.

The perfection of our human nature, in its double capacity of body and soul, ready for strong and healthy action, can only be attained by the *gradual unfolding* of this nature, according to the Divine *order* of growth. This order requires that the material development shall precede the spiritual growth; that during youth the mind shall grow *through the physical organization*; that our education of the mind shall always be subordinate to our

education of the body, until the body has completed its growth.

We have seen that, in order to provide for the gradual development of the body, we are bound to furnish the conditions favorable to its organic growth, by leaving each function in entire freedom to perform its work, and by furnishing those materials that are necessary to this work. Moreover, as the child grows, the necessity arises for uniting mental with bodily training; we must provide for the growth *of the mind through the body*, by making the exercises of the physical nature, the expressions of ideas and emotions.

Now we shall find, on reflecting upon the method in which we educate our children; in examining the details of their daily life, from early infancy to the period when they leave our roof to enter on a new phase of existence, and undertake the weighty duties of the adult age—that the whole *scope of education* is diametrically opposed to the true principles of growth, and that with every advancing year of the child's life, there is an increasing violation of Nature's law.

Let us consider first our system of school education, which embraces the most important period of youthful life. The large majority of children enter school about the age of 7 years—they leave at the age of 16. Now this period embraces, you will remember, all those remarkable changes of bodily organization which occur,

from the establishment of second dentition, to the attainment of puberty—a period of rapid growth—when the body is enlarging its range of action for the powers already established, and acquiring new functions of immense importance to the individual and to the race, and when consequently the body makes incessant demands upon the vital energy, and requires the most favorable circumstances to perform its work well.

Thus at this period of life, the entire change of the milk teeth, for a more numerous and powerful set, indicates the increasing power of digestion, to meet the more varied and substantial food now required by the body. The growth of the mind and the wants of social life, necessitate greater freedom of action—long walks, greater exposure to change of weather, to the roughness and accidents of the external world; therefore all the textures of the body must increase in size and strength. And the physical changes which precede the age of puberty, are in progress for years, before the actual appearance of the new functions established at that age.

Now what do we do, at this period of special physical growth? We completely ignore the body; we substitute mental for physical training; we entirely change the order of nature, and oppose the most formidable obstacles to the *proper* growth of the body.

For, to ensure this proper growth, the appropriate nourishment of every physical function must be supplied

in abundance. Thus a constant supply of fresh air is essential, and large amounts of *exercise* in the open air, with plenty of simple nourishing food; the body never grows so well, as in the companionship of the trees and flowers and streams of a healthy country district.

The great object of the child's life is school—pure intellectual training. The best part of every day, generally from 9 to 3, is spent in the school-room, where the mind is forced to long and *unnatural* exercise; and in order to meet the tasks imposed upon it, it must either rouse itself to a constant exertion, that would be difficult for an adult, or it must rest contented with half understanding its studies, and learn by rote; a habit which is injurious to the best qualities of the mind. And this unnatural exercise is carried on under circumstances which would almost seem expressly calculated to injure the body as much as possible. The imperfect ventilation of our houses, which renders it extremely difficult to preserve a purity of atmosphere, even in a private family, makes it quite impossible to keep the atmosphere of our school-rooms fit for human lungs to inhale; it is difficult in summer-time, with all the windows open, to maintain an entirely pure air where so many human bodies are congregated for hours together; but during the greater part of the year, the windows must be shut—for several months the rooms must be artificially heated, generally with stoves, and often red-hot. Under

these circumstances, the essential constituents of the air are exhausted more rapidly than they can be supplied ; the atmosphere is laden with human exhalations, and becomes a slow poison to those who breathe it—the lungs continue to take it in, but it can no longer perform its office of fully purifying the blood—the blood is unable to supply the normal stimulus to the brain, and the child is forced to make more difficult efforts to perform its studies well. We all know the unpleasant effects we experience in a crowded lecture-room, or in a close railroad car, and how very difficult it is to keep the mind in a condition of active mental exertion under such circumstances ; yet *we* are adults, and require the fresh air, simply for the *maintenance* of our healthy physical condition—whereas the child has, in *addition*, the requirements of rapid physical growth to be met. A playground is very seldom connected with the school ; once or twice during the six or seven hours of school-time, the child may go down for five minutes into the yard—there may be half an hour's intermission in the middle of the day—but there is no provision for amusement ; the children are exhausted by the morning's efforts, they lounge about and eat their luncheon, and are not, for the most part, inclined to take bodily exercise.

There is another serious evil, besides the close air of the school-room ; it is the injurious position in which a great part of the time is passed, leaning over the desks

in study or writing. This position is exceedingly mischievous ; the chest, which should expand freely to receive the air, to strengthen its muscles and grow, is cramped and contracted by this stooping attitude, and the pressure against the desk ; the shoulders, which should be thrown back at an equal level, are thus drawn forwards, and the right one thrown upward by the action of the arm in writing, often retains this position, and we have the narrow chest and crooked shoulders so commonly seen in school-girls. The seats are hard, generally without backs ; the body is wearied by a constrained position, exhausted by mental efforts ; the muscles of the back cannot maintain with vigor the upright position ; they seek to relieve themselves of the weight of the head and back by awkward attitudes—leaning on one side, resting on the desk, curving the back. This effort continued day after day weakens the muscles, often distorts the spine, and produces other bodily deformities—for it must ever be borne in mind, that they are the *young*, not adults that we are educating—growing bodies, soft and pliable, that give way to undue pressure, and cannot resist evil influences with the power of older years.

Now the object for which the children are thus brought together, and subjected to such serious physical evils, is open to grave objections, not only from the exclusive attention which is paid to the mind, but from

the method by which the system of teaching addresses itself to the mind.

The instruction given at school, is almost purely intellectual; the senses receive little regular training; their power is used in very moderate degree to aid the mind—yet they are the first teachers of the young. Grammar, history, definition, composition, call for simple intellectual exertion—the natural sciences are very slenderly illustrated by sensible examples, and the poor engravings in the text books are often the only illustration they receive. The most abstruse subjects, that tax the attention of the strongest mental powers, are presented as studies for the young; girls of 13 or 15 are called upon to ponder the problems of *mental and moral philosophy*, to demonstrate the *propositions of Euclid*, to understand the refinements of *rhetoric and logic*—admirable studies, truly, but they are the food of mature minds, not suitable to children. “The Logic of the Schools,” once signified the acutest efforts of powerful intellects—in our day it has a very different meaning!

There is no end to the list of “English branches,” which the child has to “go through” during the few years of school training; the enumeration would have frightened our most studious ancestors; they did not understand what is meant by “going through the English branches;” they in their simplicity supposed that there was some *use* attached to every study—that it

must be acquired thoroughly, and be made either a means of mental discipline, or an object of investigation and discovery. But it would puzzle the most ingenious observer, to discover the *good use* of most of our children's studies. If the object be mental discipline, there is no surer way of defeating such an object, than to attempt to give the mind a superficial view of a subject too difficult for it to grasp—to confuse it with a multitude of disconnected studies—to hurry it from subject to subject, so that the simple studies more suited to the young mind, are imperfectly acquired, and soon forgotten. Thus the greater part of the time devoted to the so-called cultivation of the intellect is really wasted; and it is no uncommon thing, to find the young girl who has gone through all the English branches, quite unable to write a lady-like note, or read aloud a single page with right emphasis, ease and accuracy.

How can it be otherwise, when the young mind has to apply itself, during the limited term of school-study, to such a list of subjects as the following: Grammar, Ancient and Modern History, Natural Philosophy, Chemistry, Botany, Astronomy, Mental and Moral Philosophy, Physiology, Rhetoric, Composition, Elocution, Logic, Algebra, Geometry, Belles-Lettres!

The teacher is not to blame for this wretched system of cramming. He is compelled to present as formidable an array of knowledge to be acquired at his school, as

his neighbors do ; and most patiently and earnestly he may strive to aid his pupils in the acquisition. The evil is in the system itself, which substitutes names for things ; which fails to recognize the necessity of adapting the kind of instruction to the quality of the mind. This formidable array of names, and superficial amount of instruction, is required by the community, and he is compelled to meet the demand ; this system is radically wrong—no effort of the teacher can make it right.

But is this formidable amount of English branches the only burden laid upon the child ? We have not yet spoken of the accomplishments ! accomplishments to be acquired with great labor, to a superficial extent, and laid aside directly the serious duties of life commence. French, Latin, Italian, perhaps Spanish, German, and Greek—I believe Hebrew is not introduced in this country—vocal and instrumental music, piano, harp, guitar, drawing, painting, and various kinds of fancy work, swell the increasing list. Now many of these pursuits are beautiful and useful in themselves, and would refine and elevate life if acquired at the *right time*, in the *right way*. But as studied at present, added on to the burdens of the young school-girl, their acquisition is not simply useless ; they consume much time, and thereby become highly injurious, by increasing still further the efforts of the mind, and preventing the slightest attention being given to the necessities of the body. The

school-hour closes, the child returns home ; not racing merrily along, with shout and frolic—the little girl must not slide on the ice with boys—she must walk properly through the streets ; she dines, and then there are lessons to be prepared for the next day ; if she be a docile, obedient child, some hours will be spent in this preparation—if the instincts of nature are too strong, she will neglect the lessons, wander about the house, perhaps join in a game of play ; and the next day she will suffer the penalty of a reproof from the teacher, for imperfect lessons, and the loss of her place in the class.

Perhaps the child is sent out to take a walk, on her return from school ; but what is there attractive or invigorating in a walk through our streets ? Can there be a more melancholy spectacle than a boarding-school of girls, taking their afternoon walk ? there is no vigor in their step, no pleasure in their eye ; the fresh air is certainly good for their lungs, but the unattractive exercise is of most questionable benefit.

There is little that is interesting to young girls in walking out without an object, they cannot play in the streets ; their dress would be inconvenient ; the mud and the carts, and the passengers, would prevent it. Children playing in the streets are nuisances ; though we may watch with pleasure the lively movements of a group of boys, who have taken possession of a slippery pavement with their sleighs and skates, and though we

would not for one moment dislodge them from their only play-ground—still they are out of place—and the unfitness would be still more striking, if the players were a group of girls, for there is an ideal of beauty in womanhood which may not be neglected, and our natural perception of fitness is always more outraged by coarse arrangements for girls than for boys. Our public squares do not afford the necessary opportunity for exercise. They are very few in number; they are public thoroughfares. Thus a quiet walk through the streets is the only resource for the young girls, and who can wonder that they find it more amusing to gaze in at shop windows, or lounge on the door step with young companions, or sit in a rocking-chair with a novel, than to take exercise in a dull street-walk. There is an entire neglect of all provision for the exercise of children in our city, that must not be overlooked by mothers. The ground has become so valuable, that the houses are crowded together; and with very few exceptions, the yards are laid out on the minutest pattern; exercise could not be taken in them, for they are the embodiment of dullness, shut in by brick walls; no room to run, hardly space for a swing. The old Dutch frame houses, that formerly stood in pleasant shaded gardens, on the little hills that diversified the island, have almost all disappeared; the island is fast becoming a dead level, and those pleasant gardens with the wholesome breath

of their trees and grass, have been dug away, with a short-sighted view of the greater profit to be derived from a row of brick houses. It is much to be regretted that some of those fine old gardens had not been retained for the benefit of children !

There is then for the school-girl, after the long hours of unnatural confinement, no opportunity given for the healthy action of those bodily powers which are, as we have seen, of the first importance to the young, whose neglect is the source of prolonged suffering and incapacity. There is no relief to the overtaxed mind—no excitement to the body whose powers have been so completely repressed. The child wakes in the morning, to dress and take her breakfast, and hurry off to school again. And often the toilette is hastily performed, the duties of cleanliness and order neglected, and the breakfast quickly swallowed, in defiance of the necessities of the stomach, in fear of being too late.

The food given to children is generally unsuited to their age, both in quality and quantity ; we do not draw the necessary distinction between the youthful and adult natures, and though I would not vindicate the wisdom of our own food, there can be no doubt that such articles as coffee, hot bread, mingled butter and molasses, rich or highly spiced dishes, pickles, wine, pastry, are far more injurious to the young than to the old. Their food should be of the best quality, and wholesome unadulterated ar-

ticles should be carefully selected, but it should be a plain description of food, well, but simply cooked.

They should be cautioned from eating food too hot; and from swallowing it hastily and half chewed—these habits injure both teeth and stomach; they may be entirely prevented by a little care, and the opposite habit regularly formed, will be a powerful safeguard from dyspepsia in later life.

Neither should children be allowed to eat large quantities; they require, as I have elsewhere shown, more food proportionally than the adult—and this should be given to them at regular but more frequent intervals.

We greatly injure children by neglecting these rules. In the ordinary school-hours, the child remains for seven hours without any proper meal, for the luncheon taken to school, is often hastily put up, or consists of some improper article; the pickles and candy that children frequently carry to school with them, are hardly more wholesome than the chalk, india-rubber, and slate-pencils, that they chew in such large quantities.

Thus under the combined influences of confinement and close air, of unsuitable food, and injudicious mental excitement, the school-days pass; under such influences the child changes from a girl into a woman; such is the foundation laid for the important duties of adult life!

If we were to sit down and carefully plan a system of education, which should injure the body, produce a

premature and imperfect development of its powers, weaken the mind, and prepare the individual for future *uselessness*, we could hardly by any ingenuity construct a system more admirably calculated to produce these terrible results. The stimulus applied to the young minds, the emulation excited, the very interest which they take in many of their studies, become a powerful means for weakening the body—if the minds were *not* so much exerted—if the children were lazy or disobedient and would not learn, the same amount of mischief could not be done ; but by their very conformity to rules, by striving to please their teachers and parents, and maintain an honorable position—they fall completely into the snare, and sin against nature, in exact proportion to their obedience to society !

It is in the boarding-school that this ruinous system of education attains its full force—for it is only there that the entire lives of the pupils are delivered up, for the time, to this one idea of so-called mental development. It is expected by the parents, that their children shall acquire so many branches and accomplishments in a given time ; they are willing to pay high for the knowledge, but they will be much disappointed if the children do not display the worth of the money. To fulfil this expectation the teacher must utilize every moment, for the day is too short to get through the formidable list of studies. The time is laid out with the utmost

regularity—early and late the child bends over her books or sits at the piano; the short time appropriated to exercise, is an interruption to the great business of the day, and is an unpleasant duty to all parties—for no child ever liked a boarding-school walk. The stimulus of rewards and punishments is freely applied, to urge on in the necessary direction—this stimulus is increased by the display of special exhibitions or examinations. The whole interest of the child is concentrated on its studies, for the distractions of home do not exist—the atmosphere of affection is not there, and if the moral tone of the school is good, study becomes its one idea.

I shall not speak of the frivolity and immorality which frequently exist in boarding-schools, though undoubtedly this association of children under such unnatural discipline, is calculated to weaken the moral sentiment, and produce a mental re-action in favor of weakness and folly. There is little religious influence exerted upon children at school. A formal prayer morning and evening, the repetition of Sunday's texts, or the occasional recital of a chapter in the Bible, is not the sort of instruction that will develop the religious nature of the child—the atmosphere which it breathes should be religious; it is only by the constantly exerted influence of religious natures, that children will grow in that direction. Frivolity and immorality are not necessarily connected with a well conducted boarding-school; but the

injury to the physical health is *inevitable*, it is a direct consequence of the system pursued, and too often the mind also is permanently weakened by the very course adopted to strengthen it.

At 16, the girl's education is often considered *finished*. At the very age, when, if a right system of physical and mental discipline had been pursued, she would have been prepared with a strong mind, in a strong body, to *commence* serious study, her education is pronounced *finished*, and she willingly lays aside her tasks to enter society more fully than was possible during the period of schooling. Henceforth pleasure is the chief object; for the plans that perhaps were formed, on leaving school, for reading and study, are never executed; the mind is not prepared to exert its powers alone. The knowledge already acquired has no connection with her present life—her social nature needs companionship; and the temptations of society are too strong to be long resisted.

And what has been gained during these long years of school, at such a sacrifice of physical strength? The logic has not taught her to reason well on any subject—the mental and moral philosophy will furnish her no guide to goodness or happiness—the chemistry will never aid *her* in the preparation of wholesome food, or taking stains out of her furniture—the botany will not render more interesting the country rambles that she

does not care to take. She will never use her natural philosophy to make the fire burn, or ventilate her house. These studies will be completely dropped and soon forgotten—for they were *learned too soon*—the mind could not retain them—they were acquired too superficially, too unpractically, to be of any use in strengthening the understanding, or aiding in daily life. The music may be useful in society, if there is any natural taste for it—if it is simply acquired with much drudgery, it will be at once dropped. The French will be of doubtful service—the young lady is too shy to speak it, if the occasion should present itself—if natural taste or circumstances induce her to persevere in its study, it may prove an elegant accomplishment, but, in general, that too is dropped. What then *is* made serviceable, out of the long list of studies—a *little* reading and writing (for it is very rare to find an *elegant* writer, still rarer, one who can read well aloud)—some arithmetic and the general outlines of history and geography—this may be retained for life, and this is about all! Little *real knowledge* is gained, but an evil habit of mind has been acquired; a habit of careless, superficial thought, an inability to apply the mind closely to any subject—and *this habit* unfortunately cannot be dropped with the superficial acquirements which produced it. What a result is this, for years of time spent and much money—surely we may call it a criminal waste of life!

I have already in another lecture called your attention to the absolute necessity of exercise to the young, and I have stated many of the evils which will result from the neglect of this necessity. The mischief done to the body by the system of school discipline, may for some time be hidden, by the many attractions which belong to youth. The delicacy of complexion and feature, the plumpness of figure and that graceful tournure which belong to our young American women, may for a time hinder us from perceiving the deceitfulness of those charms. Foreigners from all nations are struck by our young beauty (observe it is girlish beauty, not matured womanly beauty), and they are equally struck by its evanescent character. Let me call your attention here, to the powerful influence which our method of educating children has upon the development of the Generative System.

How many mothers have anxiously watched the suffering, the delicate health experienced by their children, when entering on the age of Puberty. The active, and apparently healthy child is then transformed into the sickly, nervous young woman. Functions which should be characterized by the perfection which marks all the actions of the healthy body, are now exercised with difficulty and often life-long suffering.

Now the influence of education, of the conditions of life upon the Generative System, is strikingly shown, in

the tables of statistics collected by the French in reference to this subject. These statistics, based upon large masses of facts collected in many countries, and in different districts and classes of the same country, have proved beyond a doubt that the growth of the generative organs is greatly influenced by the place of residence, whether town or country, and by the habits of different classes of society.

Thus the maturity of these organs was reached at a later period amongst the inhabitants of mountain districts, than amongst the laboring population of towns; and the earliest period was found in the wealthy classes of cities; rich food, luxurious habits, mental stimulus, novel reading, late hours, and over-heated apartments, are enumerated amongst the causes of this premature development.

According to these observations also, different trades clearly affected this growth. Thus those young girls who pursued confining sedentary employments of a delicate nature, as milliners, embroiderers, artificial flower makers, occupied a middle rank in regard to the period of generative development, between the laboring class and the wealthy; and it was observed in the same city, that in the children of the wealthy classes, this period was more than a year in advance of the lower classes.

We see how highly injurious the school system which we have been considering must necessarily be, to

the health of the growing girl, placing her in the most unfavorable circumstances for physical growth—being in fact diametrically opposed to the natural order of development.

Now to appreciate fully the extent of the mischief committed by our most unfortunate systems of education, we must bear in mind the most important relations into which our daughters early enter. A disordered condition of other functions would be productive of much misery to the individual—we should be cruel, voluntarily to subject her to the suffering. But this system stands alone in its importance, preparing for the duties of maternity. Not only our duty to the individual, to our children, but our wider duty to the race, commands us to educate strong mothers for the succeeding generation ! We are not faithless to our children merely, but traitors to Humanity, when we thus destroy the health of the young !

Through this imperfect development and weakness of the generative system, it is unprepared for the remarkable changes of maternity—hence we have all the long and fearful catalogue of uterine maladies, and the misery of this class of disease is increased by the wide sympathies of the generative system. It is so closely connected with the rest of the economy, so intimately united to the whole nervous system, that *simple* local disease of these organs cannot exist alone, for any

length of time—it involves function after function in sympathetic disturbance, the stomach is deranged in its action, locomotion is to a great measure hindered—the disposition and mind are affected, and there is no part of the economy that may not suffer in time.

The happiness of the marriage relation, the life of the family is thus destroyed, for the mother is quite incapacitated for the full performance of her duties. I cannot speak of the direct degeneracy of the race, which is undoubtedly produced by disease of the generative organs, for we have no statistics on the subject; the effect, however, of the general state of the mother's health on the foetus in utero, I have already dwelt on. I have no time to enlarge upon this topic—I can but lay it clearly before you, and leave it to the serious consideration which it demands.

I shall only advert to one other physical evil, directly springing from the confinement and mental excitement of school education—viz., the state of nervous irritability which is induced in young girls. The nerves of the young share the general susceptibility of the rapidly growing organization; and I have already shown, how important it is to call the nerves of *motion* into action, that they may counterbalance the undue activity of the nerves of sensation. Now not only do we entirely neglect to call the motor nerves into proper action, but the whole effect of school and in-door life is directly calcu-

lated to *exalt* the undue susceptibility of the sensitive nature.

We had a terrible example of this lately, in the sad accident that occurred in the Ninth Ward Common School—where the natural excitability of the children heightened by artificial training, produced an uncontrollable panic, which ended in so fearful a loss of life.

Presence of mind is seldom found amongst our young girls. The hysterical diathesis is too commonly the result of this excited sensibility.

The life of the young lady, on leaving school, is little calculated to restore lost power, or to excite to a truer and healthier action by the presentation of noble objects of interest. What is there in fact presented to her, worthy of pursuit? School discipline has not prepared her for serious study; indeed, study without an object is of little worth, and she has no object in view for which grave preparation is necessary. The attention to domestic arrangements does not particularly interest her; indeed, by the age of 16 or 17 she has learned all of household economy that she will learn at all, till called upon to practise it. There are no schemes of organized benevolence to attract youthful activity and kind-heartedness, and teach to the young mind a deeper and darker lesson of life than it has yet learned; it is very seldom that the young can profitably engage in these enterprises. With the large mass of girls gossip and frivo-

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lous amusements become now the chief business of the day; they have had no serious preparation for life, they know nothing of its realities, its wants and duties—so the valuable moments are laughed and chatted away; every incident furnishes a theme for idle talk—church—society—promenades through the streets—all become subjects of gossip; novels are devoured to satisfy the new thoughts and desires that are springing up—parties, amusements of all kinds are eagerly sought for—the dictates of prudence, the requirements of bodily health, are alike disregarded; till at length the giddy career is cut short—by marriage!

How little the young lady who thus leaves her novels and parties, for the duties of wife and mother, understands of the responsibilities of the state upon which she now enters. Her life since leaving school has had no definite object; and a growing want of excitement, with some lively impression of her fancy which she mistakes for love, induce her to enter prematurely on the marriage state.

The large majority of marriages are made too early. A young lady is thought to be getting *rather* old at 20, but at 25 she is already an old maid; and yet, as a general rule, before the age of 25, she is not prepared to enter on the marriage relation; it is only from 20 to 25 that the body attains its full vigor—that every part having acquired its due solidity, becomes capable of em-

ploying all its functions without injury to the individual, and with full benefit to society. Before that age, the character is not sufficiently formed, nor the experience of society wide enough, to render the individual capable of selecting her true partner. The first attraction of the young heart may be lasting, but the probabilities are against it, and in so momentous an action as the choice of a husband, the father of children, a girlish fancy should never be yielded to, till the judgment of the womanly mind confirms the attraction. But on the subject of incompatibility of character, though productive of so much unhappiness, of so much vice, in the marriage relation, I shall not dwell—for it is the physical condition which belongs especially to my subject. These early marriages *exhaust the vital energy of the mother*. The remarkable changes which child-bearing produces in the economy, require the whole energy of a strong constitution to sustain them adequately—and the care of children, the superintendence of a household, can only be supported by the vigor of a mature woman. Our young girls too early married, are crushed by the undue burdens. Their beauty quickly fades, they are afflicted by bodily weaknesses and disease, and they become absorbed in domestic cares, which they are unable to rule with grace and dignity.

It has often been remarked that the tone of American society is given by the *young*, and there is much

truth in the remark—for the married women who should be the great supporters, the attraction and guide of society, are oppressed by household cares even more than their husbands are overwhelmed by business, and thus the young and unmarried are placed in the position of *leaders* rather than *learners*.

There is another great evil committed by parents in regard to the marriage of their children. It is the neglect of that consideration of the health of the young people, and of the relation of their temperaments, which should be an especial study of the parents. The health of offspring is so inevitably affected by the state of the father and mother—the hereditary transmission of many and fearful maladies, is a fact so well established—that it is a criminal neglect of duty, to shrink from the investigation of the subject for any cause whatsoever. The physical conditions most favorable to the production of a strong and beautiful race, are a most important subject—the study is a noble one, and we should regard it with the reverence which its importance demands—and it should be considered just as criminal an act to unite individuals whose offspring will inevitably be diseased, as to take young children already in life and maim and weaken them with ingenious cruelty.

The peculiar temperaments of the parties should also be a subject of careful consideration—this is a matter of delicate perception, rather than a subject for reason-

ing—much of the happiness of married life depends upon this relation of temperaments. It is often thought that opposite characters make the best unions ; but the rule seems to be rather *unity* in variety. It is not a very lively and a very grave person that will make the best partners, nor two very lively, or very grave tempers ; between the former there will be no sympathy ; between the latter an exciting or depressing identity. But in the true union there will be sympathy of general purpose, oneness of aspiration, with an attractive difference in the conduct of daily life, which shall make pleasant harmony, not discord, still less monotony.

The delicate shades of related temperaments which make some unions so happy, can only be determined by the parties themselves ; but in order to feel this relation, there must be some experience of society, some maturity of sentiment, and not the simple bewilderment of sensation, which often forms the chief characteristic of youthful fancies.

Now this system of premature marriage is, in a great measure, a consequence of the earlier education of the child ; there is a perfect correspondence of idea in our regulations for the commencement and termination of youthful life. With us childhood is no preparation for youth, nor youth for maturity. Throughout, there is a neglect of the order of development, the foundation is not laid by a preparation of the physical nature, and

this system of *Premature Endeavor* is carried out through the entire youthful life. The child commences study too soon, and the youth leaves it off too soon ; the young lady enters society at too early an age, marries prematurely, and becomes a mother when she should be *preparing* for the married life.

We see too how in every age the necessity for varied action, the *Law of Compound Movement* is neglected ; the school-girl attends exclusively to her studies—the young lady is absorbed in pleasure—the married woman has often no thought beyond her family. The rich harmonies of life, formed by blending together in orderly gradation the action of all our powers, are entirely lost by this system of exclusion ; thus we have no society worthy of the name, because the elements which should compose it are wanting ; they are one ideal, not universal—and society is a monotony. There is no love of art, no worship of the beautiful, shedding over society a rich external life, that shall purify as well as delight the senses—no beaming forth of intellect, no warmth of the heart, no cultivation of the natural graces that should make society a beautiful meeting of all that is noble and true and genial in human nature. In society now, we see represented the poverty and exclusiveness which marks the employment of every age.

The Law of Use is equally laid aside through the various periods we are considering. It must necessarily

be so, when the first step in education is made in the wrong direction, when, by commencing with the direct and exclusive cultivation of the mind, we invert the order of nature. By attempting to force upon early youth the objects of later youth, we neglect the true use of the period of childhood, and we take from the young girl who has left school, the object of pursuit, the thorough and profitable study that the mind is *then* prepared for. We force her into a life of frivolity and an early marriage, from sheer lack of noble objects—to *escape a useless life*.

What a grand use would those years of life acquire—from 16 to 25—if they were really spent in preparation for the active duties of adult life, for the part which woman has to play—as wife and mother, member of society, and human being! *By the age of 16 or 17, under proper training*, she would have acquired a strong, graceful and perfectly obedient body—her senses would be acute. Accustomed to the exercise of their powers on beautiful objects appropriate to them, they would be truthful in their perceptions, and ready to receive the fullest extent of scientific training. She would speak fluently several languages, write a good hand, sketch with ease and correctness; sing with accuracy; for all these acquirements, and many others, would be necessarily obtained by pursuing a *complete system of physical development*.

The higher powers of the mind would be ready for

orderly unfolding—the intellect would have acquired habits of truthfulness, being accustomed to comprehend fully whatever was presented to it ; it would be eager for knowledge, for the keen appetite for information which naturally belongs to youth would not have been destroyed by unsuitable food. It would have laid in a store of facts and practical observations, gathered in many rambles in town and country, and from the conversation of intelligent instructors. And moreover, the religious nature would have grown to beautiful proportions, by that constant influence which should surround the young—she would have learned to reverence every work of creation, and to worship the Creator as a constant presence ; truth and love, and earnest work, would be the habits formed from every day's experience.

With this wide preparation of the youthful nature, the young girl on leaving school would find grand objects at once presented to her. The mind would now be ready for more direct education—the studies of the mature intellect would be brought before her, she would arrange the facts gathered in earlier life, and give them their use—her tastes would now be known, and she would select those studies that would prove congenial to her, and which her individual talents would enable her to pursue with enthusiasm. But *mental* cultivation would by no means be the sole object of attention. She should learn to *know life* in its varied aspects ; while

cherishing the ideal of life in all its brightness, she should feel strongly and hopefully, that *she* has work to do in the world, to help realize that ideal. She should gradually enter into society, to learn, to feel, to know—and, in time, to take her place as its ornament and architect.

Years of noble use would thus be opened to the young lady on her entrance into adult life—years of most valuable preparation; she would then enter the married state wisely, and with the deep enthusiasm of a mature nature. She would *know* the partner whom she selected, as he would not be mistaken in her. The highest physical and moral conditions for a happy union would be presented, and she would thus become *wife* and *mother* in the truest sense of those holy words!

Is such a result desirable? Then, friends, we can accomplish it! Our highest aspirations are our best guides, for what we strongly and wisely desire, we gradually approach.

In studying this subject of education, we have distinctly recognized the great principles on which it should be based. We have seen also the way in which our present system of education is opposed to these principles; it now remains to lay out our plans in accordance with these laws, and reconcile the necessities of our condition with the demands of nature.

It will be my duty when we next meet, to lay before

you some practical suggestions on the subject of true education, and consider in what way we may accomplish a desirable change in the present system—a gradual but complete reform.

REFORM.

It is often said that no historian can write the history of his own age—that the strong prejudices of personal interest and feeling will prevent him from understanding the true position of its various parties, and judging from a lofty stand-point the real bearing of the events that pass before his eyes. There is much truth in this saying ; it is difficult to free ourselves for a time from personal feeling—to rise above our own immediate interests, and view our life as the angels see it. The local interests which surround us absorb a great part of our attention ; our way of thinking, of living, of arranging our external relations, seems *the* necessary way—at least for a highly civilized community. We all of us make a Chinese map of the world, in which our own special interests spread out in fair proportions and bright colors over the paper, while the rest of humanity lies crowded into obscure corners ! And there is a wise design in this tendency of the human mind, for concentration of interest is necessary to insure energetic action ; and it is essential to the

well-being of the whole world, that every part, every town and village, shall be full of life, strong in the conscious importance of its own affairs.

But when self-judgment is required—when we have reason to doubt the wisdom of some of our customs—customs in which we have been educated, and which consequently appear to us at the first glance a part of nature, we must lay aside this exclusive self-regard, and take a broader view of the world, compare our ways with those of other nations and former ages, and see if our cherished habits do not shrink into insignificance, or assume the aspect of a temporary mistake.

Such is our position now, with regard to our systems of education. I have shown the great evils which result from them, particularly to girls—how disease is engendered, and the happiness and usefulness of after-life destroyed, by neglect of the physical organization, and premature culture of the mind ; and I have traced this evil to its source, viz., the disregard of the Divine Laws of Life.

But we have been so long accustomed to the idea of school as it exists at present ; we were sent to school ourselves, just as we now send our children ; we know no other method of eating, dressing, living than our present one ; that the severe judgment we have been compelled to pass upon our present system of bringing up children, may seem strange, notwithstanding the truth

on which it is based ; a change in this system may seem impossible. But there are no impossibilities in our day !

While residing in England, in order to reach the hospital I was attending, I was forced daily to cross a portion of that time-honored nuisance, Smithfield Cattle Market, which was situated in the very centre of London. I once expressed my surprise to one of the intelligent members of the Faculty, that such a cruel, dangerous, and unhealthy arrangement should be permitted to exist in London. He replied, " We English are very conservative ; this market is an immense nuisance—every body grumbles about it, as they always have done ; but there is powerful moneyed interest concerned in its support ; it is a part of London—and just as long as London exists, so long will Smithfield Market remain as it is !" That very year a bill passed the Houses of Parliament for its removal ! Surely all things are possible in our day !

Now many of the peculiarities which mark our educational system are of very modern date ; our grandmothers were by no means educated as we were ; all the habits of life were arranged on another plan ; the very food they ate was in many respects different. Tea was only introduced into England in the reign of Charles I.—sugar, spice, coffee, were then luxuries little used ; the hot drinks, and stimulating food, which, as we have

scen, affect so powerfully the stomach, the teeth, the nervous system, were not in use two centuries ago.

A knowledge of the general customs of education in other nations, will then furnish us with very important data for determining the evils of our present customs, and for indicating the direction in which some wise change may be made, enabling us to distinguish what is essential from what is simply accidental in our habits of life. I shall therefore call your attention to certain facts in the history of those nations where the greatest care has been paid to education, and where the successful result makes the method pursued worthy of study.

I have already referred to education amongst the ancient Greeks. I now direct attention again to this subject, because we find amongst that people a remarkable degree of attention paid to those very points of education which we so singularly neglect, and it will be exceedingly interesting to notice the results which they obtained.

The most remarkable feature in Grecian education was the bodily exercises, which formed the foundation of all other training. The Greeks considered gymnastic exercises to be as necessary for the *preservation of health*, as medicine is for the cure of diseases. The whole education of a Greek youth was divided into three parts—grammar, music (and some mention drawing and painting), and gymnastics. Gymnastics, however, were

thought by the ancients a matter of such importance, that this part of exercise alone occupied as much time and attention as all the others put together! And while the latter necessarily ceased at a certain period of life, gymnastics continued to be cultivated by persons of all ages, though those of advanced age naturally took lighter and less fatiguing exercises than boys and youths. The ancients, and more particularly the Greeks, seem to have been thoroughly convinced that the mind could not possibly be in a healthy state, unless the body was likewise in perfect health; and no means were thought, either by philosophers or physicians, to be more conducive to preserve or restore bodily health, than well-regulated exercise.

Gymnastic exercises amongst the Greeks were as old as the Greek nation itself. At first they were of a rude, and mostly of a warlike character. They were generally held in the open air, and in plains near a river, which afforded an opportunity of swimming and bathing. As the nation advanced in civilization, these exercises assumed a wider character; they were employed not only to harden the body for military purposes, but to give to its movements grace and beauty, also to restore the health when lost, and to make the body the basis of a sound mind; and large classes of men pursued these exercises as a profession, contending for the prizes at the public games.

At an early period in their history, the Greek towns began to build their regular gymnasia as places of exercise for the young, with baths, and conveniences for philosophers, and all persons who sought intellectual amusements. There was probably no Greek town of any importance which did not possess its gymnasium. Athens possessed three great gymnasia, to which several smaller ones were afterwards added. These buildings were all constructed on the same general plan; there were porches with seats for conversation; a large hall adorned with sculpture, and the statues of great men; hot and cold baths, covered squares for winter exercise, and open ones for milder weather, and walks for those who were not exercising. Much attention was paid to the outward and inward splendor of the gymnasia, the highest art of the age was employed to decorate them, and the statue of Hermes their tutelary deity was every where conspicuous.

The gymnasia were under the control of the State; their regulations were exceedingly strict, and some of the violations punished with death. The chief officer, the *gymnasiarch*, exercised magisterial power over all persons connected with the institution. He removed all teachers, philosophers, and sophists, when their influence was injurious to the young. He superintended the solemn games at certain great festivals, and his office was held in such esteem, that it was sought for as a high honor.

Another class of officers was appointed to inspire the youths with a *love of morality*, and to protect their virtue from all injurious influences. These officers were required not only to be present at all their games, but to watch and correct them whenever they might meet them, not only within, but without the gymnasium. There were special teachers of exercise, who were required to understand all the exercises practised in the gymnasium; they were also expected to know their physiological effects on the constitutions of the youths, and to assign to each individual the exercises most suitable to him. Other officers regulated the diet of the pupils, and acted as surgeons. There were sometimes special teachers of games at ball, for the ball was in universal favor amongst the Greeks, and was here, as at Rome, played in a variety of ways. It is both amusing and instructive, in these recorded games, to observe how human nature, 2000 years ago, resembled the nature of to-day; the history of its efforts should be no useless tradition to us. In one favorite game, one boy holding the end of a rope, tried to pull the boy who held its other end across a line, marked between them on the ground. The *top* was as commonly in use amongst boys then, as in our day. We have too the game of five stones, which were thrown from the upper part of the hand and caught in the palm. Another game, in which a rope was drawn through the upper part of a tree or post. Two boys, one on each

side the post, turning their backs to each other, took hold of the ends of the rope, and tried to pull each other up. These few games will serve to show the nature of *gymnastic sports* ; we can but refer to the more important games, as jumping, leaping, running, throwing the discus, wrestling, dancing, &c.

The education of boys up to the age of 16 was divided into the three parts mentioned above, so that gymnastics formed only one department, but during the period from their sixteenth to their eighteenth year, the instruction in grammar and music seems to have ceased, and gymnastics were exclusively pursued.

Such was the basis of education throughout Greece ; but the laws of the Lacedemonians watched over it with still stricter care. Amongst them public education was common to rich and poor. From the first moment of life, the child was an object of attention to the State. Even before birth, the mother's apartments were surrounded with pictures of youthful beauty, that these bright images might, through her organization, stamp her child with beauty. The infant's cradle was surrounded by warlike instruments, that they might become from the earliest moments a part of his life. The clothing allowed perfect freedom of movement to all its limbs ; it was suffered to cry freely, but no harsh word was allowed to excite its tears or produce a feeling of terror. Until the age of seven, it grew up under the pa-

rental influence, permitted to play freely, to regard the kind of food given to it with indifference, accustomed by degrees to darkness and solitude, and ignorant of the feeling of fear. At the age of seven the State superintended the further education of the child. One of the chief men of the republic was placed at the head of the children; he separated them into classes, and to each class a young chief noted for wisdom and courage was appointed. They submitted to his orders and chastisements; their hair was cut off—they learned to walk bare-footed, to wear a single garment summer and winter, to sleep on rushes, which they gathered on the banks of the Eurotas. They were never left alone; their exercises were performed under the eye of the aged, and the chief officer of public education; their young chief was constantly at their head when they engaged in combats, swam across the Eurotas, hunted, raced, or attended the exercises of the gymnasium. They supped on plain food, which they cooked themselves, the stronger carrying the wood, the weaker the vegetables and other food. After supper some were directed to sing, others must answer questions, thus indicating their intelligence and disposition—as, “Who is the honestest man in the city?” “What do you think of such an action?” The answer must be exact and to the point—those who failed were punished. Little literary education was given them, but they were taught to express themselves clear-

ly, to join in the exercises of dancing and music, and to sing the praises of their gods, and the exploits of those who had died for their country. They were visited daily by magistrates who inspected their education and habits, and saw if they were growing too fat. This last condition being considered an indication of *laziness*, unfortunate individuals who displayed too much *embonpoint*, were cited before the public tribunals and threatened with exile ! The greater part of the day was spent in the gymnasium.

At the age of 18, the pupils were not released from the discipline of the schools, as in many cities of Greece. Lycurgus wisely considered this a critical age, and new exercises and labors were imposed, to hinder the development of the passions. The chiefs required an increase of modesty, submission, temperance, and zeal. The singular spectacle was presented of a brilliant youth, full of pride, courage, and beauty, behaving with the decency and reserve of the young girls who served in the religious festivals.

This was not the result of external restraint, affecting simply the manners ; their *enthusiasm* was enlisted in this reserve, by the emulation of rival classes, who excited each other to the love and practice of virtue according to their standard, by the glory of victory.

These bodies of young Spartans were spread over the country, and exposed to hardships ; they were taught

to study its aspect, and learn the best method of defending it. They attacked wild boars and savage beasts—and were instructed in the manœuvres of the military art.

The whole Spartan education had a tendency to prevent premature marriage; this end was considered essential to the welfare of the State. And no union was permitted, before the body had attained a perfect development, and the judgment could guide in the selection of a partner. To suitable dispositions, the couple must join personal advantages of face and figure, and robust health.

To secure these important conditions, the Spartan legislators were *compelled* to provide for the *education of women*; they had the wisdom to perceive that the mothers of a strong race *must be strong*; and with this idea alone—not from any thought of individual right, which did not belong to the age—they arranged the most *striking peculiarity* of their system, the *education of young girls*.

In the Ionian State the women were separated from the men with oriental care. Confined in their own apartments, they spun and pursued various feminine arts; the young were strictly guarded, excluded from festivals, and no woman, married or unmarried, was permitted to enter the gymnasium, or appear at the public games, on pain of death. But in Sparta the education of girls was

conducted in public, and with a wide freedom that was strictly regulated by law. The sedentary employments of Athenian girls were neglected. They were taught to dance, to sing, to wrestle, to run rapidly on the sands, to throw the javelin with force. Their exercises were carried on in the presence of the kings, magistrates, and citizens; they assisted in the public festivals, and were encouraged to distribute praise or blame to the youths, who often exercised in their presence. Spending the greater part of the day in active and often laborious movements, a dress that should allow perfect freedom to the body, was absolutely necessary. They wore no veils or covering on their head; their dress ordinarily consisted of a single garment, light, without sleeves, attached by clasps over the shoulder, and raised above the knee by the belt.

The Spartan legislator had a double motive in these regulations; he sought not only to render the young women vigorous in health, but by thus freely educating them in public, bringing them frequently into the society of the young men in active occupations, he removed from them that mystery produced by concealment, which tends to foster the passions which he endeavored to repress; and establishing between the sexes a unity of virtue, he laid a foundation of mutual esteem, which should prove the surest basis of a warmer sentiment.

The Spartan women were long remarkable for the

purity and dignity of their manners. They were tall, strong, of vigorous health ; nearly all were beautiful—of a lofty, imposing style of beauty. Their dress after marriage consisted of a short tunic, and a robe which descended to the heel. They were veiled when they went abroad, and no longer visited the gymnasia. Their time was devoted to the early education of their children ; the whole management of the slaves and household concerns rested on them ; they discussed the affairs of state with their husbands, and their counsel was greatly respected. In Sparta it was disgraceful to remain unmarried ; the marriage union was observed with remarkable fidelity—and even when the earlier purity of Spartan manners had disappeared—the Spartan women stood high above the rest of the Grecian nations in their attachment to their duties. Their lofty character and the position which they long maintained is shown in the proud answer of the wife of the King Leonidas to a foreigner, who once exclaimed, “ You are the only women who can maintain an ascendancy over men ! ” She replied, “ Undoubtedly, for we are the only women who bring *men* into the world.”

I have dwelt somewhat in detail on the systems of education in Greece, because Greece stood first amongst the nations of antiquity in physical and mental development—the highest in every kind of excellence, according to the standard which then existed in the world. In

examining the means by which this condition was reached, we remark particularly the following points—1st, the physical discipline of the young was considered the basis of all education. 2. This physical training was not limited to a portion of the day, or to any single part of the organization, but beginning with early childhood, it was continued constantly to the period of confirmed manhood, and comprised dress, food, bathing, the air breathed, the habits of life, as well as exercise in its various branches. 3. The instruction given in mental cultivation, never interfered with the fullest attention to the use of these physical agents ; thus the beautiful groves, and the lofty halls adorned with objects of sublime art, where the instruction was carried on, could in no way injure the organic health of the body, while they refined the senses by the ennobling influences of Nature and Art. 4. The moral and religious welfare of the young, was carefully attended to. They were heathen nations ; their religion was not ours—but what seemed to them the highest virtue, was carefully instilled into the minds of their children, not so much by direct teaching, as by the influences which surrounded them, the careful oversight of all their actions, the hymns they learned to sing, the ornaments of their edifices, the conversations they listened to, the religious ceremonies in which they assisted, and the whole spirit of society. 5. This system of education based upon physical development, was applied with

remarkable advantage to their young girls ; the superiority of the women thus educated was displayed with singular success, in every respect ; they were more faithful wives, stronger mothers, wiser domestic rulers, more patriotic citizens, and nobler human beings, than the women who were educated in sedentary and secluded pursuits. 6. This long and complete physical training, favored in a remarkable degree a brilliant *mental* growth—for they stand unrivalled in antiquity, as philosophers, poets, artists, men of science, and men of action—nay, with all the added wisdom of nearly 2000 years we still bow reverently before the creations of their genius !

We find amongst the Romans, the same attention paid to the strengthening and full development of the body in early life, the mental culture being deferred to a maturer age. With them however the education had a more exclusively warlike tendency ; the system of public gymnasia did not exist, and their method of training was narrower in its aim, and less perfect in its details.

As Europe became fully peopled, the history of the northern and southern nations presents a striking contrast in relation to the life of the women of those nations. We find amongst the former a state of comparative freedom, physical strength and activity, and much rude virtue—whilst in the south we behold the seclusion of the harem, the guardianship of high walls, and bolts, and veils, se-

dentary pursuits and effeminate education, and a society utterly corrupt, with no standard of virtue but giving free rein to all the lower passions of human nature. We cannot separate the body and soul—the health of one must, as a general rule, be based upon the other; fresh air and exercise are singularly conducive to virtue, and we see this to be quite as true for women as men. In the free life of the Scandinavians—the country life—where the women lived much in the open air, not drudging in the fields—as in modern Germany—but superintending the rude agricultural labors of the bondsmen—they were courageous, truthful, chaste, and religious, and *often consulted as oracles* by their countrymen.

Contrast with them the pictures of harem life, given by modern observers in the east, and we find the women a by-word for falsehood, meanness and licentiousness—the one virtue of the Mohammedans, regard for their word—is utterly unknown to the Mohammedan women.

Throughout the nations of *modern* Europe we find an entire neglect of physical training in the education of women, and the varied evils which result from this neglect; but there is no nation in the world, where so earnest an attempt is made to cultivate the mind, with so complete a neglect of all the physical necessities of the child, as in the United States—and nowhere is the health of the women so feeble—and this weakness is on the increase.

In England the intellectual education of the young lady embraces as wide a range, and is carried out with much more thoroughness of detail, and yet the health of English women, is much stronger than that of American women. Now though the education in England is as fundamentally wrong as with us; though the true order of development is neglected, and the training is in a great measure objectless—of no use in aiding the real business of life; still it will be useful to call your attention to those differences which favor the physical health of the English, that we may realize more fully the extreme folly, the madness of our own customs. The system of private instruction is much more common than with us; at first the instruction of a governess is sufficient, then the aid of masters at home is added; thus all injurious crowding of large masses of children is avoided, and the great stimulus to mental exertion, the emulation of a large school, is not applied. Walks in the open air are regularly taken, often twice a day; the pleasant fields in the vicinity of smaller towns, and the extensive parks in the larger ones, furnish the opportunity for attractive country walks, and the pleasant recollection often remains through life, of the natural wonders which those walks disclosed. The food is much simpler than is given to children. A large bowl of bread and milk often constitutes the breakfast and supper of the child for years, from which it advances to the dignity

of bread and butter and weak tea ; good meat and vegetables constitute the rest of the food, and form the wholesome nourishment of rosy, healthy childhood. Another favoring circumstance to the health of the young, is the longer period of time allotted to education, and which consequently removes the imagined necessity for that overloading of studies from which our children suffer. Marriages are formed later in life, thereby giving the double advantage of prolonged youth and a stronger constitution to meet the requirements of maternity. The method of warming the houses by open fire-places, is another healthful custom, when contrasted with our plan of stove-heated dwellings ; this is, in some measure, the advantage of a milder climate, but a similar effect may be obtained in our severer weather, by the thorough ventilation of our houses, and the production of a more moderate heat by our furnaces.

Amongst the so-called higher classes the possession of extensive and beautiful country-seats favors the employment of special exercises, as riding and archery, and aids greatly in producing that superior physical development, for which the English aristocracy are noted.

Thus by a combination of circumstances, each one of which may seem a small thing in itself, but which, united, produce a powerful effect on the daily life of the young, the physical health of the English women, reaches a higher point than is common with us—and I attribute

the superiority to these *differences of habit*, for we find in the large boarding-schools of England, and amongst those classes, where these simple healthy habits are not observed, the same physical degeneracy, the host of named and unnamed diseases, that is increasing in so alarming a degree amongst us.

Thus we find that the history of all ages and nations confirms, by the lesson of their practical experience, those great principles which we laid down, at the commencement of our lectures ; and that daily life, to be wise and good, must be the working out in detail, of these universal laws. All the powers of our nature must be developed by exercise—but this development must be effected in the true order of growth ; the double movement of body and soul must always be maintained, but with varying predominance according to the age ; and every moment, every action, must have an object, a special, and a universal use.

Such are the lessons we learn, alike from the teaching of reason, and the observation of life ; and by our neglect of these principles we learn the cause of our present failure in the attainment of health—health in its widest sense.

Let us consider then in what way we can so far modify the education of the young, that it may be in accordance with those Divine laws which we now violate. A momentous question ! We have done much to answer it

however, in attaining a clear understanding of the evil, which will serve to show us in what direction our efforts must be turned. In considering this question still farther, let me say a few words in relation to this important point—Physical Exercise—which, as we have seen, must play so prominent a part in true education.

Exercise to perform its true work in the education of youth must be scientific—its practice must be based on principles, it must accomplish definite ends, by intelligent means; there is as much difference between the action of *thinking and unthinking muscles*, as between the idle jingling of tunes on the piano, by a person of quick musical ear, and the grand effects produced by an accomplished musician, who, expressing every faculty of his soul through his instrument, can carry his audience with him through the wide range of passionate sentiment.

The savage nations gain health and strength by their untutored activity, but they remain brutal and degraded—they gain no mental refinement by their exercises—and they are always surpassed by civilized man when he turns his attention to these subjects—as the Mormons, while journeying through the wilderness, always triumphed over their Indian antagonists in every encounter of force or skill—in running, leaping, wrestling, &c.

Now scientific exercise trains the mind and the character; it may be moral and intellectual in its action—

the faculties of order, precision, calculation, self-command, decision, energy, &c., will be called into intelligent action through the exercise of the museles ; and by the combination of the senses with special adaptations of the museles, a wide range of culture is opened to youth, which will embrace almost every instruction suitable to that age.

We are indebted to the Swedish poet and philosopher, Ling, for the noblest development of the subject of exercise which we have yet had ; a student of the old Greek gymnasties, a descendant of the warlike Norsemen, surrounded by the traditions of their strength, their matchless feats of physical power, and the virtues that underlay their ferocity, he longed to introduce into our effeminate manners a little of the wholesale physical energy, which seemed to have vanished with the old vikings. Thus he developed his admirable system of Gymnasties in its various branches ; he saw it adopted by his native country—taken under the protection of the government—introduced into the army, into medicine, into education—and he left it as a precious legacy to future ages, and to more detailed development and adaptation by his successors. To the zeal of his intelligent disciple, Prof. Georgii, we owe the introduction of this system amongst the Anglo-Saxon race. He has been for nearly three years, patiently establishing the medical department of gymnasties in London, with the full purpose of institut-

ing a central gymnasium, such as exists in Stockholm, for the promulgation of all the branches of gymnastic art as soon as the support of public sentiment will justify him in the undertaking.

The system of Ling is an attempt to restore education to its true basis, and to attain the due balance between the physical and spiritual natures. It is not an effort to revive the heathen education of Greece, nor the fierce customs of the Northmen—but to adapt the principle of truth and vigor, which existed in those people to the customs of our advanced civilization—to join the physical energy of the Norsemen, with the mental energy of the nineteenth century, and with the purity and holiness of the Christian.

In accordance with his views, as a first step in direct physical education, the will must obtain perfect control over all the muscles. You will remember the immense number of muscles in the human body, with the infinite variety of combinations of which they are capable. The ordinary exercise of walking and domestic occupations, does not bring the majority of these muscles into active play; we need, then, special movements, which shall produce this wide activity, and thus strengthen every muscle and place it under the control of our will; the direction of these movements, needs much physiological study, that there may be no violation of the laws of our economy, that true movements may be produced in a

true way ; without this knowledge, gymnastie movements may become injurious, even dangerous—for not only may the museles be injured by an attempt to perform movements for which they are not adapted, but their action may be falsified by an incorreet and slovenly manner of performing the movements.

The museles having been trained to obedience and force, will be employed in overcooming resistances, active or passive, as in wrestling, throwing, lifting weights, elimbing, swimming, &c., in establishing harmony between themselves and external objects, as in fencing, riding, &c., where unity of action between the individual and the animal, or the weapon, must be observed—or they will be employed to express sentiments, and adapt themselves to the senses, as in declamation, pantomime, danees, singing.

Ling divides his system into four branches : 1. The pedagogie, by which the body is subjected to the will, and unity of action established between different parts of the body. 2. The military, in which the individual subjects another will to his, either by his own power or by the aid of instruments, establishing unity of action between the body and weapon, in relation to the body and weapon of his adversary. 3d. The medical, in which the unity of action between different parts of the body, which was lost by disease, is restored. 4th. The æsthetie, in which ideas and sentiments are expressed by move-

ments and attitudes—a unity established between soul and body.

Ling lays down the age of seven years as the right period for commencing gymnastic instructions ; two or three hundred pupils exercise together ; they are divided into classes of twelve or fourteen, according to age, temperament, aptitude and strength. Each class is directed by a pupil monitor, who superintends the execution of the movements which are distributed by the master, who directs the whole.

These movements are various—adapted to special ends, and always based on physiological knowledge. The employment of apparatus is of secondary importance. The human body being the most perfect of all instruments is not subjected to material force. The apparatus is very simple, and only used to serve as fixed points for various gymnastic movements.

While the movements are executed with the utmost precision, the perfect performance of every movement being enforced with rigorous exactitude, gayety is encouraged amongst the pupils. Ling remarks in his General Treatise, “Joy and peace are produced by the harmony which exists between all the faculties of the soul, and all the powers of the body ; therefore, as this is the object of gymnastics, this sentiment should have a large share in the exercises, good order regulating its manifestations.” The health being thus strengthened by

the physical education, which keeps pace with the moral and intellectual discipline ; about the thirteenth or fourteenth year, a wider sphere is opened to the pupils by the addition of the military and æsthetic branches.

Such, though in very general terms, is the idea which Ling, after forty years of patient endeavor, established in a practical form in his native country, and which is attracting much attention in Europe, and gradually spreading from one nation to another. It is an idea which is essential to *us*, as more than any other nation we have sinned against the body. We need a rational system of gymnastic training—not to supersede country rambles and the healthful society of natural objects—a child brought up entirely in the city can never be a healthy one ; but to form the *basis* of a sound education, to insure the perfect development of the body, and to furnish that rational and attractive exercise which the youth of our city need.

We must bear distinctly in mind that the object of education is not to pour a certain amount of technical knowledge which we call grammar, mathematics, philosophy, &c., into the intellects of our children, but to strengthen all their faculties, to give them command of their own bodies and souls, that they may, as life opens before them, be able to employ their powers for useful ends. Until a girl is sixteen, it is much more important that she should possess a healthy body, an honest, lov-

ing heart, good sense and a clear intellect, than that she should be able to answer questions on every science, or play tolerably on the piano, speak French and embroider, if these latter acquisitions necessitate physical and mental weakness in after life. It is of great importance to her, to possess a strong straight back, good digestion, a cheerful temperament, a body that can move with vigor and grace, organs that perform their functions healthily; she should be truthful, kind, earnest, and active; her intellect should have acquired habits of observation, order, thorough comprehension, and energetic application. If she has gained these qualities, this strength of faculty by the age of sixteen, it matters little that she is not versed in the technicalities of learning, or that she is unable to display her accomplishments; she will soon acquire the learning of the schools, and the ornaments of elegant life, with a completeness and a grace that can never be attained by *too early* training. Her powers will all be strong, and she will know how to use them; this is the great point, and this is *not* gained by our ordinary methods of education.

What then must be done in order to save the rising generation from the physical weakness and disease, with their attendant evils, which prevails so widely in the present race, and which are rapidly increasing in extent?

I answer, 1st. The domestic habits of our households must be changed for children; their food, dress, sleep-

ing apartments, and hours for rising and retiring, must be regulated with scrupulous regard for their physical welfare, and according to the principles so often laid down in the course of our remarks.

2d. The system of school discipline must be essentially modified. The period of life from seven to sixteen being regarded as the special season of physical growth, the bodily development must be considered as the basis of all true education ; we must cease to force the learning of a later period upon the youthful mind at that age. A system of scientific gymnastic training should be adopted—every kind of active sport encouraged—the accomplishments of riding, dancing, singing, swimming, archery, &c., should be taught ; the moral and religious nature should be educated by the intercourse and influences of every day. The *habits* of the intellect should be carefully trained in conversation and in those studies which are suitable to the age ; these studies should be such as require the aid of the senses—writing, drawing, the study of charts and maps, the living languages and a variety of other subjects, might be employed to advantage. There should be frequent expeditions into the country or to the sea-side, where in direct intercourse with nature, the child in conversation with its teacher, would learn with the utmost avidity and happiness—for such expeditions our city enjoys rare advantages ; an hour's journey by steamboat or omnibus would bring the

children into the midst of the magnificent country which borders the Hudson ; or spread them along the shores of the Atlantic.

The idea of physical development should never be forgotten in any study ; no pursuit should place the child under unfavorable conditions of position, atmosphere, &c., and direct physical exercise should constantly terminate the short periods of mental application. Lofty, well ventilated halls, and a large piece of ground partly shaded by trees, should be essential elements of every establishment for education.

Such changes could easily be brought about in our school system ; it only needs that public opinion should be roused to the necessity of an ample provision for the physical education of the young—that mothers should realize the immense mischief that is done to their daughters by neglecting the *body* and overtasking the mind, and that they should resolve as a duty of primary importance to give them a strong physical organization. Public sentiment thus requiring the true method of education, would soon find its wants satisfied by the necessary institutions, and intelligent teachers would gladly welcome the change, for they clearly perceive the evils of the present system—though they are quite unable, alone, to remedy them.

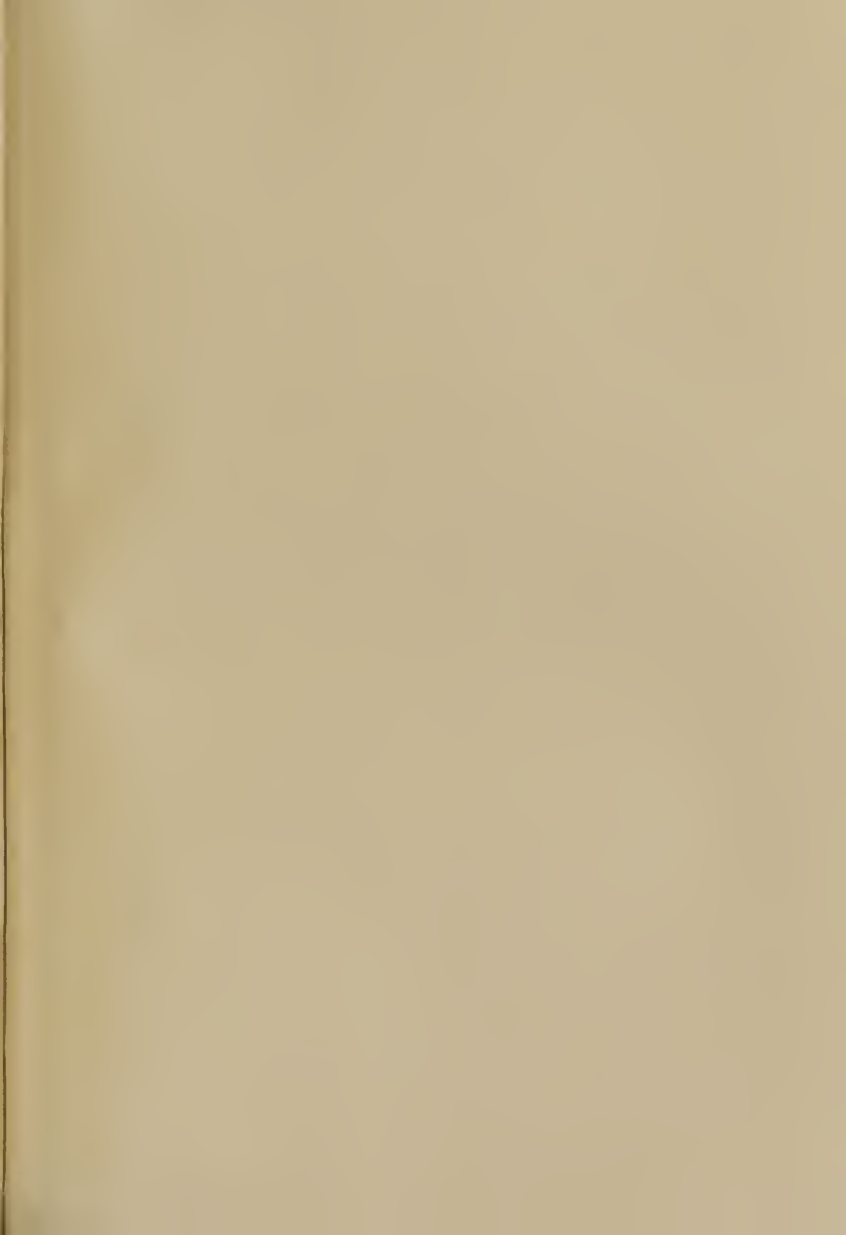
I cannot enlarge at present, on the condition of the young lady, who has left school—her wants and duties—

nor on the many evils of adult life, for my plan is limited, and the time allotted to my lectures is ended.

I will only in closing most earnestly entreat you as wise mothers, as responsible human beings, to be faithful to the trust committed to you—the education of the young. Remember the one great truth, which I have constantly endeavored to enforce—that there is a Divine Order of Growth appointed for the human being, which we dare not neglect without violating our duty as parents, as Christians—a Divine Order which, if we observe faithfully through every period of life, will bring health and beauty, and happiness amongst us. We shall see our children grow up around us in strength and grace, and fulfil in after life the promise of their childhood. The beauty of Adam and Eve will no longer be a tradition of the past—for the Divine Image shall again be stamped upon our race.

Oh, mothers ! you have a glorious duty to perform to the young beings intrusted to your care—the duty of training them to perfection, to the ideal of our human nature—let it be a sacred duty—accomplished with religious care, and with the loftiest sense of your responsibility.

May the time which we have spent together aid you in this duty, and induce you to adopt those practical measures which will secure to our children a true education of body and mind !



Blackwell, Elizabeth, *Laws of life, with special reference to the physical education of girls*, QTA B632L 1852

Condition when received: The book has undergone extensive conservation in the past. It has been entirely re sewn and placed in a new cloth casing. In addition, the title page and the one half title page have been mended in the past. The first twenty pages have severely creased, dog-eared corners.

Conservation treatment: In preparation for exhibition, the corners on the first twenty pages were humidified using a detail brush and deionized water. The creases were smoothed using a Teflon tool and brought into plane between blotters using mild pressure. Several of the corners bore weak creases that required reinforcement. They were supported using tengujo paper (Japanese Paper Place) and wheat starch paste (Talus).

Treatment carried out by Rachel-Ray Cleveland
HMD Paper Conservator, 05/2003.

The Laws of Life. Blackwell, Elizabeth.

New York: Putnam, George P., 1852.

National Library of Medicine
Bethesda, MD

Condition On Receipt: The full cloth commercial library binding was in relatively sound condition. The sewing was intact. The pages were torn, dirty, discolored, stained, acidic, weak and brittle. Many of the pages were laminated with an unidentified plastic material. The adhesive used had severely discolored the pages. The inks tested appeared stable in water.

Treatment: The volume was microfilmed. The volume was collated and disbound. The inks were tested for solubility. The plastic laminate was removed mechanically and the residual stains were removed with acetone. The head, tail and pages were dry cleaned and washed and then buffered (deacidified) with magnesium bicarbonate solution. Tears were mended and folds guarded with Japanese paper and rice starch paste. The volume was re sewn on linen tapes with linen thread. Paper ends with a linen hinge were attached. The volume was case bound in full cloth. A leather label was stamped in gold foil.

